UNIVERSITÉ DE SHERBROOKE

Faculté d'administration

Social Media to Support Collaboration in the Product Life Cycle of SMEs

Médias sociaux pour supporter la collaboration dans le cycle de vie des produits et services des PME

par

Jérémi Doyon-Roch

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Jérémi Doyon-Roch

A été évalué par un jury composé des personnes suivantes :

Ela ne osconi _____ Directrice de recherche

Clau e Caron _____ Autre membre du jury

John _____ Autre membre du jury

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SUMMARY

The use of social media tools to support small and medium-sized enterprises (SME) to support their business activities throughout the product life cycle (PLC) phases represents an interesting opportunity. SMEs operate in very competitive environments, and face significant challenges primarily caused by their size disadvantage. By nature, social media tools and platforms can enable them to overcome some of these challenges, as they are often very inexpensive, familiar and easy to use, allowing them to reach large audiences they would not be able to reach with traditional and expensive marketing initiatives. To provide solutions to this problem, this research identified three main objectives. The first objective was to draw a picture of the existing academic literature on the use of social media tools in the PLC context to better understand how these tools were studied and used in businesses, and for what purpose. Second, this research aimed at understanding how SMEs actually use social media tools to support their different business activities to identify the gap between academic research and actual business practices. Finally, based on the findings highlighted from the previous objectives, this research aimed at developing theory on this topic by proposing a conceptual framework of customer engagement enabled by social media. The conceptual framework aimed at answering general questions that emerged from the initial two objectives: Why do some SMEs use social media to support customer engagement, while others do not? Why do firms use different social media tools to support their customer engagement initiatives? Why does the scope of customer engagement initiatives (i.e., across different PLC phases) vary between SMEs? What are the potential outcomes of conducting customer engagement initiatives for the organizing firms?

In order to achieve these research objectives, the methodology employed for this research is threefold. First, a systematic literature review was performed in order to properly understand how the use of social media tools in the PLC context had been studied. The final results consisted of 78 academic articles which were analyzed based on their bibliometric information and their content. Second, in order to draw the contrast between the academic publications and managerial reality of SMEs, six semi-structured interviews were conducted to understand how these firms actually use social media to support different activities in each of the PLC phases. Third, five additional semi-structured interviews were performed to gather a deeper understanding of this phenomenon and generate theory to support the proposed conceptual framework. The conceptual framework focuses on the degree of customer engagement, which is comprised of the scope (PLC phases) of customer engagement and the technology (social media tools) employed to support these initiatives. Two sets of antecedents were examined, firm motivators and firm impediments, as they could both potentially affect the scope and the social media tools used to support

customer engagement initiatives. Finally, potential customer engagement outcomes for SMEs developing these initiatives were also examined.

The semi-structured interviews lasted approximately 25-35 minutes, and were performed using an interview grid consisting of 24 open-ended questions. The interview grid was developed based on the findings of the systematic literature review, and this qualitative approach allowed for a rich understanding of the interviewed SMEs' use of social media tools to support and engage customers in their different PLC activities.

The main results highlighted by this project demonstrate that this field is relatively recent and sees constant increase in research interest since 2008. However, most of the academic research focuses on the use of social media tools to support innovation activities during the new product development process, while the interviewed firms almost exclusively used the tools to engage customers in the later phases of the PLC, primarily for promotion, customer service support, and business development activities. Interestingly, the interviewed firms highlighted several benefits of using social media tools to engage customers, some of which could help them overcome certain size disadvantages previously mentioned. These firms are in need of further guidelines to properly implement such initiatives and reap the expected benefits.

Results suggest that SMEs are far behind both large companies and academic research in their use of social media to engage customers in different business activities. The proposed conceptual framework serves as a great tool to better understand their reality and eventually better support them in their social media and customer engagement efforts. However, this framework needs to be further developed and improved.

This research project provides a 360-degree view of the phenomenon of the use of social media to support customer engagement for SMEs, by providing both a thorough systematic review of the academic research and an understanding of the managerial reality of SMEs behind this phenomenon. From this analysis, a conceptual framework is then proposed and serves as a stepping stone for future researchers who are interested in developing theory in this field.

RÉSUMÉ

L'utilisation des médias sociaux en support aux activités d'affaires dans chaque phase du cycle de vie des produits et services des petites et moyennes entreprises (PME) représente une excellente opportunité pour les entreprises cherchant à se différencier du marché et se rapprocher de leur clientèle. Les PME œuvrent dans des milieux extrêmement compétitifs et doivent faire face à cette concurrence avec des ressources généralement inférieures aux grandes entreprises qui œuvrent dans la même industrie. L'idée d'identifier comment les technologies peuvent soutenir les PME et réduire l'écart qui les sépare de certains joueurs dans leurs milieux respectifs est apparue comme un sujet pertinent, ayant le potentiel d'amener une contribution académique et managériale. Les médias sociaux ont, par leur nature, le potentiel de permettre aux PME de rejoindre les masses, démontrer de la créativité et ainsi être plus compétitifs que jamais. Les médias sociaux s'avèrent d'autant plus pertinents puisqu'ils sont accessibles à relativement moindre coût, nous sommes familiers avec ces outils et ils sont généralement faciles à utiliser. Ils peuvent ainsi permettre aux entreprises d'accomplir des choses que leurs ressources ne pourraient normalement pas leur permettre.

Afin de soutenir les PME dans leurs efforts pour réduire cet écart face aux grandes entreprises, ce projet de recherche identifie trois principaux objectifs. Le premier objectif était de dresser un portrait de la littérature scientifique sur l'utilisation des outils de médias sociaux dans le contexte de cycle de vie des produits afin de mieux comprendre comment ces outils ont été étudiés et utilisés en entreprises. En second lieu, cette étude avait comme but de comprendre comment les PME utilisent les médias sociaux pour supporter leurs différentes activités d'entreprises afin d'identifier l'écart entre la littérature scientifique et la réalité de monde des affaires. Finalement, cette recherche vise à développer de la théorie sur ce sujet en proposant un cadre conceptuel sur l'engagement des consommateurs soutenu par les médias sociaux. Le cadre conceptuel a comme objectif de répondre aux questions qui ont émergé en analysant les réponses aux deux premiers objectifs: pourquoi certaines PME utilisent les médias sociaux pour soutenir l'engagement des consommateurs alors que d'autres ne le font pas? Pourquoi les entreprises utilisent-elles différents outils de médias sociaux pour soutenir leurs initiatives d'engagement des consommateurs? Pourquoi est-ce que la portée (différentes phases du cycle de vie des produits) des initiatives d'engagement des consommateurs varie entre les PME? Quels sont les aboutissements potentiels pour une organisation qui met sur pied une initiative d'engagement des consommateurs?

Dans le but de répondre à ces objectifs, la méthodologie employée est constituée de trois étapes distinctes. Premièrement, une revue systématique de la littérature a été exécutée afin de comprendre comment l'utilisation des médias

sociaux dans le contexte de cycle de vie des produits a été étudiée. 78 articles ont répondu aux critères d'exclusion et ont été analysés afin de faire ressortir des résultats basés sur leur information bibliométrique et leur contenu. Deuxièmement, afin de délimiter l'écart entre les publications académiques et la réalité des PME, six entrevues semi-structurées ont été menées afin de comprendre comment ces entreprises utilisent les médias sociaux pour supporter différentes activités dans chaque phase du cycle de vie des produits. Troisièmement, cinq entrevues semi-structurées supplémentaires ont été menées afin d'obtenir une compréhension plus en profondeur de ce phénomène et ainsi générer de la théorie pour développer davantage le cadre conceptuel proposé. L'accent du cadre conceptuel est le degré d'engagement des consommateurs, qui comprend la portée (phases du cycle de vie des produits) de l'engagement des consommateurs et les technologies (outils de médias sociaux) utilisées pour soutenir ces initiatives. Deux antécédents ont été examinés, soient les motivateurs et les obstacles aux entreprises, puisqu'ils pourraient tous deux potentiellement affecter la portée et les outils de médias sociaux utilisés en soutient aux initiatives d'engagement des consommateurs. Finalement, les aboutissements potentiels à engager les consommateurs pour les PME qui mettent sur pied ce genre d'initiatives sont également examinés.

Les entrevues semi-structurées étaient d'une durée d'environ 25 à 35 minutes. Une grille d'entrevue composée de 24 questions ouvertes a été utilisée afin d'orienter les entrevues et collecter des données. Cette grille a été développée en fonction de l'analyse et des résultats provenant de la revue systématique de la littérature. L'approche qualitative de ces entrevues a permis d'obtenir une compréhension en profondeur de l'utilisation des médias sociaux en support à l'engagement des consommateurs dans diverses activités du cycle de vie des produits des PME.

Les principaux résultats de ce projet illustrent que ce domaine d'étude est relativement récent et illustrent une constante croissance dans l'intérêt de recherche pour ce sujet de recherche depuis 2008. Cependant, la plupart des recherches académiques mettent l'accent sur l'utilisation des médias sociaux en support aux activités d'innovation lors des phases du processus de développement de nouveaux produits, alors que les entreprises interviewées utilisent presque exclusivement les médias sociaux pour engager les consommateurs à des fins de promotion, service à la clientèle et développement d'affaires lors des dernières phases du cycle de vie des produits. Il est intéressant de noter que les entreprises interviewées ont identifié plusieurs bénéfices à utiliser les médias sociaux afin de surmonter certains désavantages mentionnés ci-dessus. Ces bénéfices potentiels illustrent l'importance pour ces PME de bénéficier de plus amples directives et recommandations afin d'effectivement implanter ces initiatives et de récolter ces bénéfices potentiels.

Nos résultats nous ont permis de comprendre que les PME sont en retard sur les grandes entreprises et le milieu académique dans leur utilisation des médias sociaux pour engager les consommateurs dans diverses activités d'entreprises. Le

cadre conceptuel proposé est un excellent outil permettant de mieux comprendre la réalité des PME et éventuellement de mieux les supporter dans leur implantation de divers médias sociaux et leurs efforts pour engager des consommateurs. Cependant, ce cadre conceptuel nécessite davantage de recherches afin de le développer davantage et l'améliorer.

Cette recherche se différencie des autres recherches dans ce domaine en fournissant une vue globale de ce phénomène, soit une rigoureuse revue systématique de la littérature académique, ainsi qu'une analyse de la réalité pratique des PME. De cette analyse, un cadre conceptuel est proposé et sert de fondement pour les futurs chercheurs qui souhaitent développer de la théorie reliée à ce domaine d'étude.

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FIRST CHAPTER
RESEARCH PROBLEM

Small and medium sized enterprises (SME) compose a vast majority of the Canadian economy, as 99% of our country's businesses fall into this category (Government of Canada, 2012). They face significant challenges because of the competitive nature of most industries, and have to find ways to survive and succeed against larger organizations with more resources. In addition, globalization, primarily caused by the development of Internet and e-commerce applications, has forced SMEs to innovate and re-invent their ways of conducting business. However, although the emergence and wide spread acceptance of Internet technologies have helped large organizations reach new heights, some technologies can also help SMEs reduce this gap and allow them to conduct business in a way they never could before. Social media tools have emerged as the ideal technology for SMEs to maximize their resources, and demonstrate creativity by significantly increasing their reach at relatively low cost. The nature of social media allows companies to interact, engage, and co-create value with their customers (Filieri, 2013). Customer engagement can be useful to support business activities throughout the PLC phases, to crowdsource the idea generation process, co-develop prototypes, co-create marketing campaigns, and benefit from customers word-of-mouth to support customer service support, just to name a few. The potential benefits are relevant for any organization, however, SMEs, by exploiting social media platforms, can accomplish tasks that are originally performed by R&D departments, large marketing teams, and impressive sales force that are typically out of reach for SMEs with limited resources. This research project therefore aims at first getting an in depth understanding of the academic and managerial situation of this phenomenon, and then aims at building theory to better support and guide SMEs in their efforts to leverage social media tools to support their customer engagement initiatives.

This research project is composed of three articles[1], two of which have been submitted and accepted in academic conferences, one of them, the second article, was also submitted to the Journal of Technological Forecasting and Social Change and is in the reviewing process. The third one has been submitted to the Journal of Service Theory and Practice and is also under review. Each article serves a specific purpose in this research project. The first two articles aim at better understanding both the academic and managerial situation of the use of social media tools to support business activities throughout the product life cycle (PLC), while the third one aims at building theory on this research topic, based on questions and gaps highlighted in the initial two.

The second chapter, The Use of Social Media Tools in the Product Life Cycle Phases: A Systematic Literature Review, consists of a thorough systematic review of the academic literature on the use of social media tools in the PLC context. This review allowed me to get a deep understanding of the academic situation and relevance of this research topic. It served as a foundation for the following articles, and it was also used to develop the interview grid employed to collect data.

In the third chapter, Social Media for Product Life Cycle Management of SMEs: Multiple Case Studies, semi-structured interviews with six Quebec SMEs were conducted to get a deeper understanding of how SMEs collaborate with external sources, and how they use social media to do so. This article allowed me to compare the managerial reality of our SMEs with academic research and identify specific needs and gaps that need to be addressed to better support their social media and collaboration efforts through further research.

Following these two initial steps, I was able to grasp a profound and global understanding of the research topic, which allowed me to dig deeper, gather

[1] References from all articles are presented in the Bibliography section.

additional data, and propose a theoretical framework, building theory on the subject. In the fourth chapter, Social Media to Support Customer Engagement throughout the Product Life Cycle of SMEs, a conceptual framework of customer engagement supported by social media is proposed. This conceptual framework is yet another step towards better understanding the reality of SMEs behind customer engagement and the use of social media. Further research should allow researchers to develop guidelines and recommendations to help SMEs effectively implement social media and customer engagement initiatives, and reap the potential benefits that can emerge from such initiatives.

SECOND CHAPTER
THE USE OF SOCIAL MEDIA TOOLS IN THE PRODUCT LIFE CYCLE PHASES: A SYSTEMATIC LITERATURE REVIEW

1. FOREWORD

The following article was authored by me, Jeremi Doyon-Roch, and Elaine Mosconi. My contribution to this article consisted of the complete and systematic analysis of the literature on the use of social media in a product life cycle context, along with most of the article's written content and development, under Elaine's constant supervision and guidance. This article was presented and has been published in the proceedings of the 49th Hawaii International Conference on System Sciences (HICSS), which took place between January 5 and 8, 2016, in Kauai, Hawaii[2].

Reference: Roch, J. & Mosconi, E. (2016). The Use of Social Media Tools in the Product Life Cycle Phases: A Systematic Literature Review. *Proceedings of the 49th Hawaii International Conference on System Sciences (HICSS)*, Kauai, Hawaii.

2. ABSTRACT

In a business world where competitive pressure is constantly increasing, firms are continuously trying to differentiate themselves. The advent of Web 2.0 technologies such as social media allowed firms to communicate and interact with consumers and online users in order to collect information and to perform R&D, marketing and sales tasks. This study uses a systematic literature review in order to identify which social media tools can be used in the product life cycle phases. The results show that most studies focus on the earlier phases of the product life cycle, for innovation purposes. This study offers a systematic overview of literature and suggests many insights to help future researchers and managers in their use of social media in a product life cycle context, which also includes innovation process.

[2] The proof of submission to this conference is presented in Appendix E.

3. INTRODUCTION

In an era where companies are under continuous and increasing competitive pressure, their ability to create value for consumers in order to differentiate themselves by understanding consumers' needs and preferences is crucial. Some of the competitive challenges, primarily caused by technological advances, are shorter product life cycle, rapid consumer changes, and flattened global markets (Sigala, 2012). In order to gain consumer knowledge, companies typically perform classical methods, such as focus groups and market researches. However, these methods are limited for acquiring appropriate customer information because they focus on inquiring and gathering the rational and conscious customer needs rather than on enabling customers to identify the deepest determinants of their affection and real wants (Hoyer, Chandy, Dorotic, Krafft, & Singh, 2010). Classical methods do not allow customers to unravel their unconscious needs and their determinants, and they can hardly express these needs in a context which differs from their previous experiences (Lundkvist & Yakhlef, 2004).

This leads enterprises to invest important resources in R&D initiatives, especially internal R&D which has traditionally been used by firms for innovation activities and strategy. A dilemma highlighted by Chesbrough (2003) outlines that innovation is indeed crucial for a company's survival, but internal R&D is too slow to keep up with most market innovations. Several studies have shown that failures in new product and service introduction is mainly caused by the firms' lack of market understanding and orientation (e.g., Drew, 1995; Martin Jr & Horne, 1995; Sigala, 2012), along with shortcomings in identification and exploitation of new market and customer knowledge (Cooper & Kleinschmidt, 1994; Menor *et al.*, 2002). These results strongly support the integration of open approaches not only for innovation, but for problem solving and knowledge gathering across the product life cycle.

Fortunately for companies, new methods and technologies are available and needed to obtain and manage these diverse innovation inputs (Huesig & Kohn, 2011). The biggest technology enabler is certainly the advent of the Internet. The Internet provided the means to "openness" in a variety of fields, by allowing for information to be shared and distributed globally (Tooze, Baurley, Phillips, Smith, Foote, & Silve, 2014). In the context of product life cycle, people can contribute to idea generation and product design, share product and service information, and promote products and services, transcending geographical and time barriers. The growth of such technologies, specifically Web 2.0 technologies, has created an opportunity for organizations to leverage online crowdsourcing and open innovation in new ways, by engaging directly with a large number of users to co-create value for customers (Di Gangi, Wasko, & Hooker, 2010).

It was suggested that future research to identify specific co-creation techniques and tools to be used in the different product life cycle phases was needed (Orcik, Tekic, & Anisic, 2013). This research identified social media as a co-creation tool to support products' life cycles and address this gap in the literature. Social media tools are not only useful for innovation purposes, Bernoff and Li (2008) advance that such technology can support later phases of the product life cycle by supporting firms' marketing, sales, or customer service, as well as managing products' removal.

By considering the gap on studies addressing how social media tools can support the entire product life cycle, this paper aims to identify which social media tools can be used in the different product life cycle phases. The remainder of this article is structured into four main sections: 4) research background that presents the main concepts addressed; 5) research method that illustrates the methodology employed to perform this systematic literature review; 6) results, which show the major findings from the existing literature; and finally 7) discussion and conclusion,

which put forward implications and limitations of literature findings, and direction for further research.

4. RESEARCH BACKGROUND

4.1 Web 2.0 and social media

"Web 2.0 applications [are] delivering software as a continually–updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an 'architecture of participation' and deliver rich user experiences" (O'Reilly, 2005).

Contrasting the Web 1.0 "read-only" environment, the Web 2.0 allowed for dynamic and decentralized pages where users can read, write, and contribute to enriching the value of content (McAfee, 2006; O'Reilly, 2007).

Social media is a major component of Web 2.0 and the two terms are often used interchangeably. Social media has been defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content" (Kaplan & Haenlein, 2010, p. 61). However, the "Web 2.0 represents the ideological and technological foundation for the evolution of social media" (*Ibid.*, p. 61). These authors also state that social media "refers to the online platforms, which individuals and communities can use to share, discuss, co-create, and modify user-generated content." User generated content is a notion that emerged with the advent of such platforms, and refers to all the content published by users on an online platform.

These platforms allow firms to communicate with customers worldwide, and give them more opportunities to gather valuable information directly from consumers

and other Internet users. Internet applications have enabled a large number of people to interact and exchange information and ideas about firms and products at low costs (Shirky, 2008). Customers can now perform a variety of tasks once performed internally, ranging from idea generation, to prototype testing, and customer support. However, despite efforts to implement such technologies, a lack of guidelines regarding when and how they should be implemented has not allowed firms to reap benefits for these initiatives in product development (Chirumalla, 2013).

In the business context, social media's clear advantage on traditional methods is its inexpensive nature. However, Haavisto (2012) highlights that, to be beneficial for firms, the active participation of consumers is essential. He also states that there is some interest amongst organizations to use social media tools, but many companies are unclear on how to effectively integrate them. Nonetheless, the ability to communicate with a large audience, turning one-to-one or one-to-many communications to many-to-many communications, has caught entrepreneurs' attention, and the use of social media tools has increased significantly in the last decade (Haefliger, Monteiro, Foray, & Von Krogh, 2011). From the customers' perspective, social media has empowered them to be active in the exchange process, as their opinions will be heard, and might eventually contribute to products' and services' evolution.

Based on the works of Kaplan and Heinlein (2010) and Wyrwoll (2014), 11 social media categories were identified, which can be differentiated by their features and characteristics, and their level of customer involvement (see Table 1).

Table 1

Social media categories

Categories	**Description and characteristics**	**Examples**	**Authors**
Blog	Entries are usually produced by a single author, and are displayed in reverse chronological order, presenting the most recent entry at the top of the page.	Mashable, Business Insider	Wyrwoll (2014), Kaplan & Haenlein (2010)
Forum	An online discussion site where users can hold conversations in form of posted messages.	SitePoint, DigitalPoint	Wyrwoll (2014)
Location sharing and annotation	This platform applies location-based services that enable groups of users to share their current location and annotations.	Foursquare, Loopt, Facebook Places	Wyrwoll (2014)
Media sharing/ Content community	Registered users can upload their content and share it with specific users or provide it to the public.	YouTube, Flickr, Slideshare	Wyrwoll (2014), Kaplan & Haenlein (2010)
Microblog	Allow users to broadcast short, real-time messages. It differs from blogs, because content units are limited in length.	Twitter	Wyrwoll (2014)
Question and answer	Users can pose questions and everyone can answer them. Answers can often be rated by others.	Ask, Blurtit, Yahoo! Answers	Wyrwoll (2014)
Rating and review	Allow users to rate and comment on products and services, by a single click, while reviews are written comments.	Qype, Ciao, TripAdvisor	Wyrwoll (2014)
Social network	Social network sites allow individuals to create a profile and connect with a list of other users.	Facebook, LinkedIn, Xing	Wyrwoll (2014), Kaplan & Haenlein (2010)
Collaborative project	Enable the joint and simultaneous creation of content by many users.	Wikipedia, Delicious	Kaplan & Haenlein (2010)
Virtual game world	This three-dimensional environment allows users appear in the form of personalized avatars and interact in a game context, in order to achieve a specific goal.	World of Warcraft, EverQuest	Kaplan & Haenlein (2010)
Virtual social world	Allow inhabitants to choose their behavior more freely and live a virtual life similar to their real life in a 3D environment.	SecondLife	Kaplan & Haenlein (2010)

4.2 Product life cycle

As mentioned earlier, customer integration has always been important in many businesses' processes. With the advent of Internet technologies, firms' ability to engage with customers throughout the innovation process (Dahan & Hauser, 2002) and the later phases of the product life cycle (Bernoff & Li, 2008) has greatly been enhanced. For the purpose of this study, we used the product life cycle phases proposed by Saaksvuori and Immonen (2008), and Stark (2005). In addition, for this research, products are defined as followed: "There are three kinds of products: 1) goods meaning physical, tangible products; 2) services; 3) intangible products meaning non-physical products that are not services." (Saaksvuori & Immonen, 2008, p. 1). The product life cycle process consists of five phases, which are presented in Table 2.

Table 2

Product life cycle phases

	Phases	Description	Authors
New Product Development	Planning	Consists of the customer and market segmentation, along with the initial idea generation and selection of the new product on a generic and abstract level.	Saaksvuori & Immonen (2008)
	Imagination		Stark (2005)
	Introduction	Involves the definition and designing of the new product as well as designing its production and delivery to the markets.	Saaksvuori & Immonen (2008)
	Definition		Stark (2005)
	Growth	Consists of producing, manufacturing and bringing the product to market.	Saaksvuori & Immonen (2008)
	Realisation		Stark (2005)
	Maturity and Decline Support and Service	Consists of the "active life" of the product. There is a shift from volume production to performance and margin evaluation to increase profitability.	Saaksvuori & Immonen (2008)
			Stark (2005)
	Retirement	Occurs when the decision to remove the product from the market is made. The product can either be officially removed, or recycled.	Saaksvuori & Immonen (2008), Stark (2005)

These five phases correspond to different business tasks and therefore required specific consumer input. The growth and realisation phase represents the end of the NPD process within a product's life cycle. New product development is a high

risk process, which often leads to market failure (Sawhney, Wolcott, & Arroniz, 2011), mainly because firms lack market orientation (Ogawa & Piller, 2006). It is therefore crucial that firms collaborate with users in the early phases of the product life cycle, in order to minimize the risk in the later phases. The role of customers is significant throughout a product's life cycle; they can successfully participate in new idea generation, contribute to the diffusion of information about the product, shape other customers' purchase behavior (Vianello & Mandelli, 2009), and even provide service support to other consumers (Nambisan, 2002). There is therefore a significant need for future research to focus on the use of co-creation and crowdsourcing tools for the entire product life cycle. Furthermore, it has been shown that different tools have different effects on NPD outcomes across the different phases (Boutellier, Gassmann, Macho, & Roux, 1998; Malhotra & Majchrzak, 2004).

5. RESEARCH METHOD

For the research design of this study, a systematic literature review was performed in order to identify research results covering how social media tools can support the entire product life cycle. It was conducted based on the guidelines proposed by (Conforto, Amaral, & Silva, 2011). These guidelines consist of three phases (inputs, processing, and outputs). Each phase is described in order to detail the methodology employed.

5.1 Phase 1: Inputs

In the first phase, the systematic literature review and its inputs were planned and defined. The seven steps of this phase represent the plan for the systematic literature review's inputs, and are defined as follows.

1. Objectives: The objective of this research is to identify how social media tools can be used in the different product life cycle phases.

2. Database definition: Five databases were selected in order to cover almost all relevant literature on the subject. ABI/INFORM, EBSCO, Science Direct, SCOPUS and Web of Science were the sources selected. Only peer-reviewed journal articles, published in English were selected. Searches should be conducted using “title”, “abstract”, and “keywords” fields.
3. Strings definition: relevant keywords to social media and to the product life cycle were selected. The research included the following social media terms: “social media” OR “social network” OR “social web” OR “web 2.0” OR “crowdsourcing” OR “social product” OR “co-creation” AND the following product life cycle terms: “product development” OR “product innovation” OR “product lifecycle” OR “product life cycle” OR “new product” OR “product process” OR “innovation process” OR “development process” OR “idea generation” OR “collaborative development” OR “product idea” OR “product management” OR “PLM”
4. Inclusion criteria definition: in order to gather more accurate results it was determined that articles had to identify specific social media tools to be used during one or multiple product life cycle phases to be included in the research. Moreover, results were covered until December 2014.
5. Searching: results were exported to RefWorks and examined to eliminate duplicates, then exported to a table for filtering.
6. Filters with inclusion criteria application: the first iteration was made based on abstract reading; the second iteration on the article’s full reading.
7. References by references search: was only performed to gain further research background information and knowledge using the references of the selected articles.

5.2 Phase 2: processing

A systematic literature review search and the results analysis were performed. Searching using the string of words on the five databases produced 552

results. The first analysis consisted of identifying duplicates and non-scholarly journal articles which brought the number of results down to 513. After the first filtering, which was based on the content of the abstract, 123 articles remained. A full reading of the 123 articles generated 78 articles relevant to the research objective (Full list available in the second section of the Bibliography). Figure 1 summarized the results process.

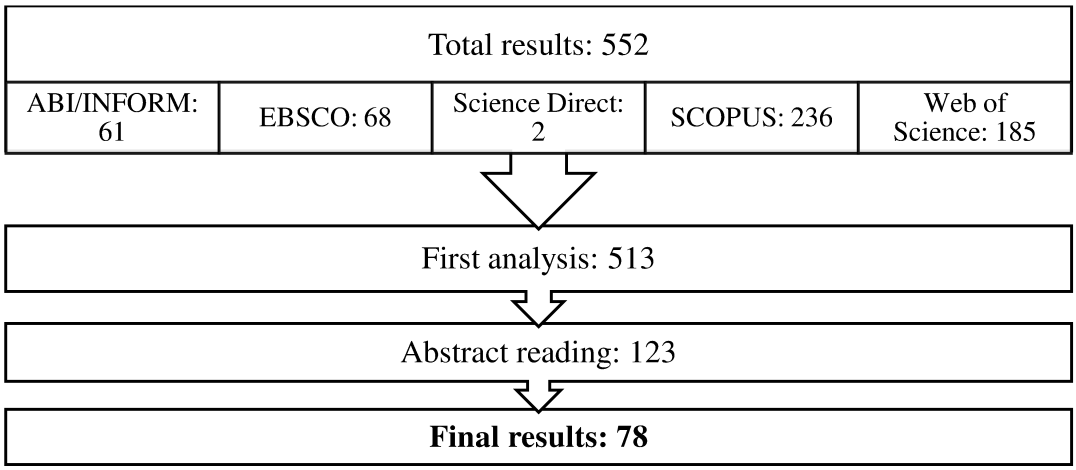


Figure 1. Systematic literature review search process

5.3 Phase 3: Outputs

The systematic literature review's outputs are displayed in the synthesis tables in the results section, along with other significant information about the subject. After the selection of the 78 final results, the articles were thoroughly analyzed for any categorization and in depth understanding of the research subject. The next section describes and synthesizes the results of this analysis.

6. RESULTS

A first analysis based on the bibliometric information of the results is presented in section 6.1 and a second analysis of the content of the articles is synthesized in section 6.2.

6.1 Results analysis

The results analysis is presented according to various criteria considered relevant for an overview on how research has evolved on the subject. The criteria are: year of publication, journal, authors, research approach, research method and business size studied. Figure 2 illustrated these criteria.

The 78 articles were classified by the year of publication. This distribution provides an overview of the evolution of the literature on the use of social media tools in the product life cycle phases.

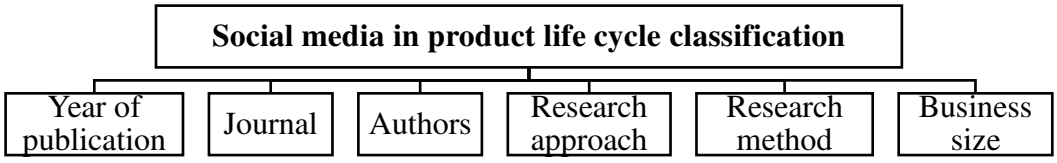


Figure 2. Categories for literature classification

Figure 3 illustrates that the first publication occurred in 2005 through 2014. This indicates that this field of research is quite recent, and this time frame corresponds to the increased popularity of the Web 2.0. There also seems to be an increased interest in the topic from 2008 to 2013. However, a slight drop of publications in 2014 might suggest a decrease in research interest in the topic, or a shift towards specific topics and keywords not identified in this research. Also, it might suggest a need for better understanding on how social media can create value for companies along the entire product life cycle.

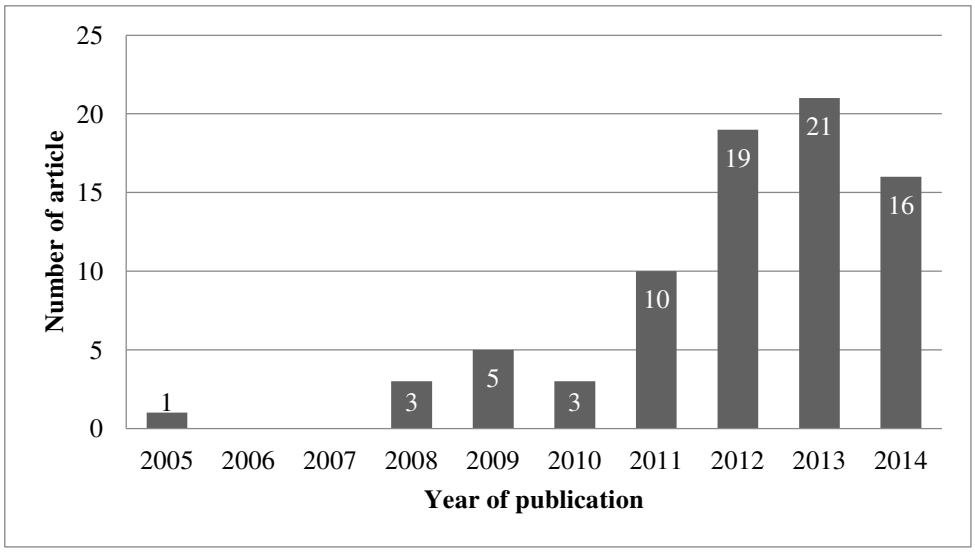


Figure 3. Articles by year of publication

Articles related to this study are published in a variety of journals. The 78 articles were published in a total of 63 journals. The most articles (5) were published in the Journal of Product Innovation Management. 17% of the selected journals published more than one article on the use of social media tools in the product life cycle phases. Table 3 presents the list of journals with at least two publications.

Table 3

List of journals with at least two publications

Journals	Number
Journal of Product Innovation Management	5
Research Technology Management	3
Acta Technica Corviniensis - Bul. of Engineering	2
Innovation-Management Policy & Practice	2
Int. Journal of Networking and Virtual Org.	2
Journal of Direct, Data and Digital Mkt Practice	2
Journal of Interactive Marketing	2
Management Science	2
MIT Sloan Management Review	2
Problems and Perspectives in Management	2
Technovation	2

There is a wide range of authors responsible for the 78 selected articles. There is a total of 176 authors, of which none have part taken in more than four articles. Matzler, K. is the only authors to have published four articles on the subject, while Füller, J; Kohler, T; Krcmar, H. and Sigala, M. were responsible for three articles each.

It is also relevant to present the research approach used in the selected articles as it allows us to understand how the study of links between social media tools and the product life cycle has evolved. 60% of articles based their analysis on qualitative data, 30% on quantitative data, and only 1% used a mix of qualitative and quantitative data. Because of the importance of qualitative research approaches used, the use of social media tools in the product life cycle phases is still a field in its exploratory stage. The figure 4 illustrates these results.

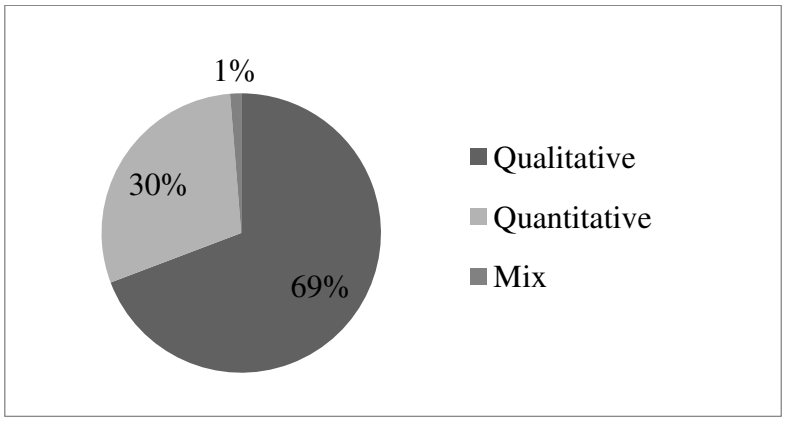


Figure 4. Classification of the selected articles' research approach

The classification of the research methods provides more information about the source of the information on the use of social media in product life cycle phases. Therefore, this classification can help guide future researchers in the research method to be employed to assess the relevance of different social media tools in the product life cycle phases. Figure 5 demonstrates the wide range of research methods used in the selected articles, and a majority of these studies have been single (33 articles, 42,3%) and multiple (13 articles, 16,7%) case studies.

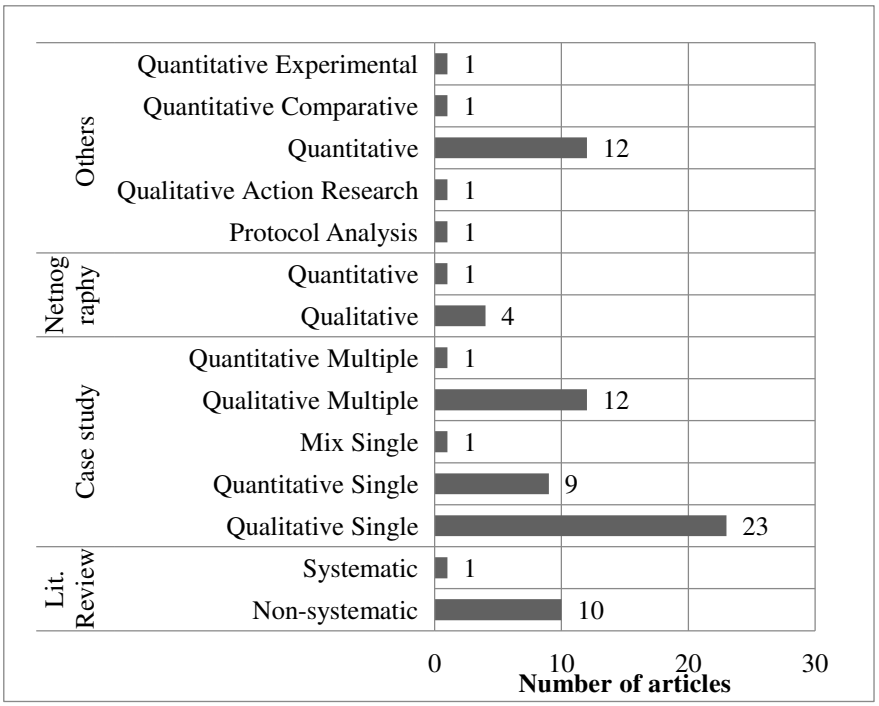


Figure 5. Classification of the selected articles' research method

Only 19% of the articles focused on an SME context, compared to large. These results therefore reflect the reality of businesses. Figure 6 presents the distribution of business sizes across the selected articles.

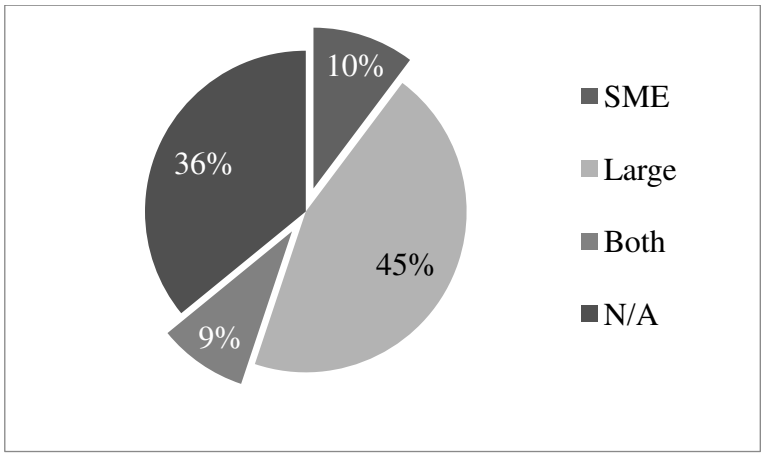


Figure 6. Businesses' size studied in the selected articles

This overview of bibliometric characteristics of the selected articles can be useful for researchers in their definition and selection of research design when studying social media in a product life cycle context.

6.2 Results synthesis

The systematic literature review highlighted significant trends in the academic literature on the use of social media tools in the product life cycle phases. Most of the studies focus on the earlier phases of the product life cycle, the NPD, which corresponds to the planning and imagination, introduction and definition, and growth and realisation phases.

Figure 7 presents the percentage of articles to study the use of social media tools in a specific phase of the product life cycle. 68 articles (87,2%) of articles focused on the planning and imagination phase, mainly for the generation of new ideas.

These findings show the importance of customer input in new product development, while also highlighting a lack of academic research to support firms' entire product life cycle process, as only 24,4% and 12,8% of the selected articles study the use of social media tools for the maturity and decline phase, and the retirement phase respectively. 35,9% of articles focused on the introduction and design phase, while 33,3% of articles focused on the growth and realisation phase.

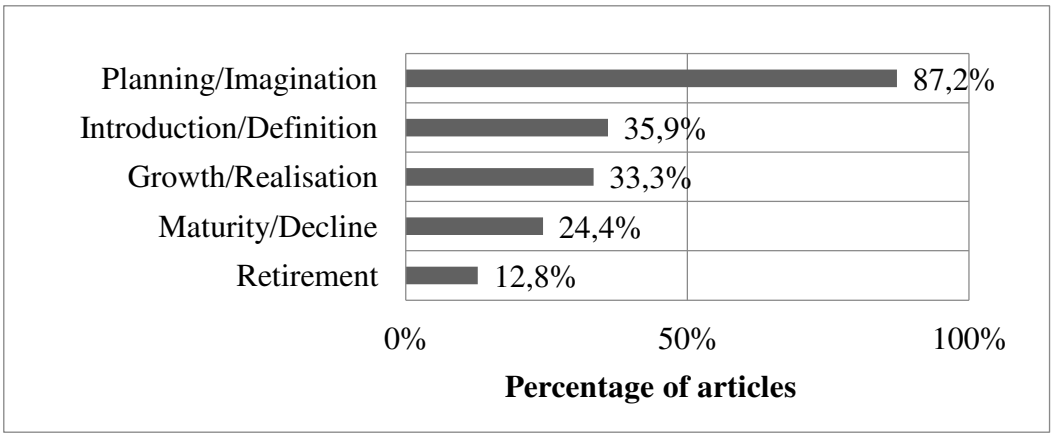


Figure 7. Product life cycle phases in the selected articles

Table 4 illustrates the tasks studied within each phase of the product life cycle. In the first phase, planning and imagination, social media tools were mainly used and studied for idea generation and idea screening tasks.

The introduction and definition phase is characterized by designing products and concepts, along with testing these concepts and product prototypes. In the growth and realisation phase, the selected articles highlight that marketing and promotion tasks are the main drivers for using social media. During this phase, social media tools are also used for tasks surrounding the launch of the product and the customer service support that it entails. During the maturity and decline phase, social media was almost exclusively used for marketing and promotion purposes, taking advantage of the word-of-mouth and viral marketing phenomenon, and customer service support, which was either performed directly by firms' employees, or by customers themselves. The same results appeared for the retirement phase, but product feedback tasks took a bigger role, as they often lead to the recycling of products, which can then be re-used in another form to better satisfy market and customer needs.

The results presented in Table 4 demonstrate that social media tools in the first two phases are used specifically to gather customer knowledge to create and design the products and services. Starting at the growth and realisation phase, there is

a shift in the way firms use social media tools. During the final three phases, these tools are mainly used for promotion, marketing and customer service support purposes.

Seven social media tools not identified in our base categories emerged from the systematic literature review. Idea generation platforms, co-creation platforms, contest and idea competition platforms, podcasts and vodcasts, project development platforms, bookmarking tools, and online innovation platforms have been used and studied in the product life cycle. These platforms consisted of a crowdsourcing effort, where users, following an open call from the firms, could share ideas, rate others' ideas, and often comment and add to the concepts. These social media tools are mainly employed by companies for the initial phase of the NPD. Amongst these new tools, idea generation platforms were the most studied (39,7% of articles).

Table 4

Product life cycle phases in the selected articles

Phases	Tasks	References
Planning/ Imagination	Market insights/Customer need identification	[A2, A39, A60, A62]
	Idea generation	[A2, A4, A5, A6, A7, A9, A10, A12, A13, A14, A16, A17, A18, A19, A20, A21, A23, A24, A25, A26, A28, A29, A31, A32, A34, A38, A40, A42, A44, A45, A47, A48, A49, A50, A51, A52, A53, A56, A57, A58, A59, A61, A62, A63, A64, A66, A67, A68, A69, A70, A71, A72, A73, A74, A76, A77]
	Idea screening	[A6, A9, A12, A13, A16, A19, A20, A23, A24, A28, A29, A31, A38, A40, A47, A48, A49, A50, A52, A53, A58, A63, A64, A70, A73, A76]
	Idea feedback	[A2]
	Idea selection	[A69]
	Not specified task	[A1, A3, A11, A30, A33, A35, A37, A41, A43, A75]
Introduction/ Definition	Concept and product design	[A2, A10, A16, A17, A39, A46, A51, A52, A61, A64, A74, A76, A77]
	Concept and design testing	[A18, A39, A47, A52, A60, A64, A76]
	Prototype testing	[A7, A46, A61, A77]
	Market testing	[A39]
	Packaging design	[A15, A23]
	Product development	[A7, A47]
	Internal design communication	[A24, A58]
	Not specified task	[A3, A30, A35, A37, A40, A62, A75]
Growth /Realisation	Production/Manufacturing	[A8, A47, A61]
	Promotion/Mkt (product and brand)	[A2, A4, A9, A22, A23, A27, A36, A52, A54, A55, A60, A61, A62, A65, A67, A76, A78]
	Launch	[A9, A18, A47, A51, A62, A64]
	Service support	[A2, A9, A52, A60, A76]
	Internal problem solving/communication	[A35]
	Packaging design	[A23]
	Not specified task	[A3, A30, A37]
Maturity/ Decline/ Support and Service	Promotion/Mkt (product and brand)	[A2, A4, A9, A22, A23, A49, A52, A54, A60, A61, A65, A67, A76, A78]
	Service support	[A2, A4, A9, A17, A52, A60, A66, A76, A78]
	Packaging design	[A23]
	Product feedback	[A2]
	Performance review	[A47]
	Internal problem solving/communication	[A9, A35]
	Not specified task	[A37]
Retirement	Promotion/Mkt (product and brand)	[A2, A52, A60, A65, A76]
	Service support	[A2, A9, A52, A60, A76]
	Product feedback	[A2, A9, A49]
	Performance review	[A47]
	Internal problem solving/communication	[A35]
	Recycling	[A49]
	Not specified task	[A37]

Table 4 shows all business activities performed in each product life cycle phase that appeared in the selected articles and where social media tools have been used.

Figure 8 presents the percentage of articles studying the different social media tools. The main social media feature studied was the rating and review tool with 60,3% of the selected articles. These tools are very important for the screening and the evaluation of new product ideas, and the comment system is widely used on social media platforms for improved interactions amongst users. Social networks was the second most studied category with 41%, where users could create profiles and take part in online communities and create networks of friends or other users who share common interests.

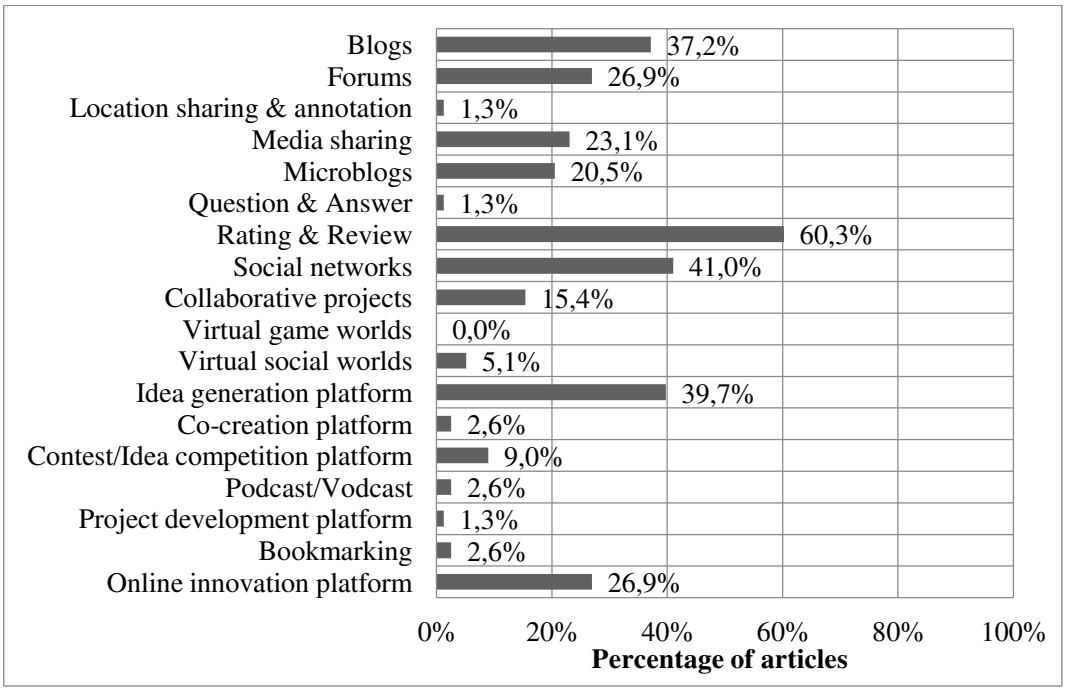


Figure 8. Graphic of the use of social media in the selected articles

Another significantly used social media tool is the blog (37,2%). Blogs are used by firms to share information with their customers, and often support other tools

such as idea generation platforms, or contest and idea competition platforms. Table 5 presents the list of social media tools studied in the selected articles with their respective references.

Table 5

Social media categories in the selected articles

Social media categories	**References**
Blogs	[A2, A3, A9, A10, A11, A13, A17, A19, A20, A28, A36, A37, A42, A43, A47, A49, A54, A55, A58, A61, A62, A63, A64, A65, A68, A71, A72, A73, A78]
Forums	[A3, A9, A10, A13, A14, A18, A22, A25, A26, A29, A32, A37, A43, A47, A57, A65, A66, A72, A74, A75, A78]
Location sharing & annotation	[A60]
Media sharing	[A4, A5, A15, A17, A20, A27, A34, A36, A37, A47, A51, A58, A60, A61, A62, A64, A67, A78]
Microblogs	[A10, A20, A23, A27, A34, A36, A37, A47, A54, A60, A62, A64, A65, A67, A68, A78]
Question and answer	[A35]
Rating and review	[A1, A4, A5, A6, A7, A9, A12, A13, A16, A17, A19, A20, A21, A22, A23, A27, A28, A29, A31, A32, A33, A34, A40, A41, A42, A44, A45, A47, A48, A49, A51, A52, A53, A56, A57, A61, A63, A64, A67, A69, A70, A72, A73, A74, A76, A77, A78]
Social networks	[A3, A4, A5, A8, A9, A11, A17, A18, A20, A23, A24, A27, A34, A36, A37, A42, A43, A46, A47, A49, A52, A54, A58, A60, A61, A62, A64, A65, A67, A72, A74, A78]
Collaborative projects	[A3, A10, A12, A13, A17, A35, A37, A46, A47, A58, A61, A74]
Virtual game worlds	N/A
Virtual social worlds	[A38, A39, A50, A62]
Idea generation platform	[A1, A4, A6, A9, A16, A18, A19, A20, A28, A29, A30, A33, A34, A37, A40, A41, A42, A44, A45, A47, A48, A49, A52, A53, A56, A63, A67, A69, A73, A74, A76]
Co-creation platform	[A23, A31]
Contest/Idea competition platf.	[A12, A21, A51, A59, A64, A70, A77]
Podcast/Vodcast	[A3, A72]
Project development platform	[A5]
Bookmarking	[A3, A10]
Online innovation platform	[A7]

7. DISCUSSION AND CONCLUSION

This study offers important insights to help future researchers and managers in their use of social media in a product life cycle context. The list of selected articles in the systematic literature review provides all the social media tools used and studied in product life cycle phases. A total of 18 social media tools were identified throughout the five life cycle phases. Most of the studies (87,2%) studied the use of social media tools in the planning and imagination phase, mainly for idea generation and idea screening functions. The most studied social media was the rating and review tool (60,3%). This tool is essential for the idea generation and idea screening functions, as the rating and review tool has been studied 44 times in the first product life cycle phase, which means that 93,6% of articles studying the rating and review tool did so during the planning and imagination phase.

Furthermore, these findings highlight that social media tools are not a checklist for businesses to be active on. Specific social media tools should be selected according to firms' objectives and their products' respective life cycle phase. The selection of social media and their level of integration should be in line with the company's culture. These results offer important insights on how social media tools can support the entire product life cycle.

From an academic perspective, the results yield interesting findings. The first is that the marketing discipline has limited engagement with literature on the use of social media for tasks in the later phases of the product life cycle, such as promotion or customer service support. In contrast, the innovation management discipline has actively contributed to the literature on the use of social media during the new product development process. This paper, however, advances that social media tools seem to offer an interesting support for activities and tasks performed in different phases of the product life cycle, and that more investigation into how these Web 2.0 platforms can create value for businesses. Many aspects of social media

adoption in support of product life cycle activities also require research clarification. Furthermore, the use of social media tools for specific marketing tasks should be a topic of interest for marketing researchers, as social media has been widely studied in the marketing literature, and the focus should now shift towards its use in specific business contexts and tasks.

Second, from the literature, several key concepts emerged. The concept of co-creation, which is defined by the interaction and collaboration of organizations, groups and individuals in problem solving by jointly generating solutions and most importantly creating value (Russo-Spena & Mele, 2012). The concept of open innovation is also at the core of the reviewed articles. It refers to the inflows and outflows of knowledge in order to accelerate internal innovation processes (Chesbrough, 2003). Finally, the term crowdsourcing has also emerged. It is the ability to outsource functions originally performed internally by the firm to a generally large pool of individuals using an open call (Howe, 2008), using the lead user method, online toolkits, or innovation contests.

Despite the systematic approach to selecting articles on the use of social media tools in the product life cycle phases, there are some limitations to this research. Most studies focused on the NPD process and the earlier phases of the product life cycle, with only 19 articles for the maturity and decline phase, and 10 articles for the retirement phase. This limited number of results may not properly represent how social media tools are used and should be used in these phases. Moreover, several articles did not explicitly name or categorize the social media tools employed. Another important issue worth mentioning is the fact that a full content analysis of the selected articles has not been performed in order to identify the performance and efficiency of each social media tool in a specific phase of the product life cycle.

The growing popularity in social media, and the lack of understanding amongst firms regarding the technology reinforces the need for further research. The subsequent steps for this research should be to analyze the content of the selected articles to identify the performance and efficiency of the different tools in different life cycle phases in order to propose a model of which social media tools could be used in each phase of the product life cycle. Additionally, future studies should focus on how these findings can be implemented in an SME context, as only 19% of articles focused on SMEs. These results are not surprising as (Prandelli, Verona, & Raccagni, 2006) identified that only large companies and multinationals utilize the Web to its fullest potential. It was also suggested that Web 2.0 technologies specifically benefit and advantage open innovation efforts of SMEs as they reduce the firms' size disadvantages compared to large firms (Petersen, Welch, & Liesch, 2002). Additional research should be conducted to provide SMEs with information on how to engage customers to be active in the implemented social media tools as it has been proven that the primary cause of failure of Web 2.0 projects is a lack of customer engagement (Di Guardo & Castriotta, 2014). It would also be interesting to study whether there is indeed a difference in the use of social media tools in tangible products' life cycles compared to its use in services' and intangible products' life cycles.

Finally, it would be important to identify how social media platforms can create customer and business value throughout the product life cycle.

THIRD CHAPTER
SOCIAL MEDIA FOR PRODUCT LIFE CYCLE MANAGEMENT OF SMEs: MULTIPLE CASE STUDIES

1. FOREWORD

This article was authored by me, Jeremi Doyon-Roch, and Elaine Mosconi. My contribution to this article consisted of the integration of parts of the systematic literature review results previously presented, the development of the interview material (grid and consent form), the execution of six semi-structured interviews, the analysis of the collected data, and most of the written content presented in the article. Once again, my contribution for this article was supervised and guided by Elaine Mosconi. This article has been submitted and accepted for the 2016 Academy of Management Meeting, which will take place between August 5 and 9, 2016, in Anaheim, California[3]. This paper, as a result of minor changes, was also submitted to the Journal of Technological Forecasting and Social Change, and is currently under review.[4]

Reference: Roch, J. & Mosconi, E. P. (in press). Social Media for Product Life Cycle Management of SMEs: Multiple Case Studies. In Proceedings of the Academy of Management Annual Meeting. USA, 5-9 Août 2016. Anaheim, California, USA : AOM - Academy of Management.

2. ABSTRACT

SMEs evolve in a highly competitive environment, where firms' survival depends on their ability to differentiate themselves from competitors and provide greater value for customers. This study focuses on how social media tools can enable SMEs to collaborate with external parties, such as customers, partners, and suppliers, to generate value throughout their products' life cycles. Social media tools can be very beneficial for SMEs, as they are familiar tools to customers, they allow firms to

[3] The proof of submission to this conference is presented in Appendix F.
[4] The proof of submission to this journal is presented in Appendix G.

reach an increased amount of current and potential customers, and are inexpensive. This research uses a multiple case studies design, in order to understand how SMEs currently use social media to collaborate with these external actors, and aims at identifying where improvement is necessary. Six cases have been used from diversified industries of tangible products, intangible products, and services. Results illustrate that SMEs do not actively use social media tools to collaborate for innovation purposes during the initial phases of the product life cycle. Rather, they use them for marketing, customer service support, and business development activities in the later phases of the product life cycle. Findings suggest a need for further guidelines as to how social media can be integrated to support innovation activities.

3. INTRODUCTION

In order to stay alive, companies, now more than ever, need to better understand their customers' needs and preferences in order to create a superior value proposition for them and remain competitive (Haavisto, 2014). To address these competitive challenges, businesses have turned towards innovation as a driving force behind sustainability and even economic growth (Chesbrough, 2003). However, successful innovation is no easy feat. Several studies have demonstrated that innovation failures, or unsuccessful product or service introduction are mainly caused by a lack of market understanding and orientation (Drew, 1995; Martin & Horne, 1995), along with an inability to properly identify and use the collected market knowledge (Menor, Tatikonda, & Sampson, 2002).

Von Hippel (2001) has identified customers to be the most valuable source of reliable market intelligence. By collaborating and involving customers in different business processes, organizations can learn about customer needs, and reduce uncertainties towards the market (Sigala, 2012).

Internet has enabled new and modern communication technologies that have allowed customers to be more active (Parjanen, Hennala, & Konsti-Laakso, 2012). The novelty of such technology has made managers unaware and skeptical of the

efficiency of these tools and the corresponding practices (Bengtsson & Ryzhkova, 2013). However, the ability to reach large audiences through these communication technologies can be very beneficial for companies, as large groups of people can outperform individual experts (Surowiecki, 2004; Jeppesen & Lakhani, 2010) in problem solving, fostering innovation, and identifying new market trends (Surowiecki, 2005). Customers can therefore reach new levels of empowerment and become more active in different business processes. It has enabled a shift from "a perspective of exploiting customer knowledge by the firm to a perspective of knowledge co-creation with customers" (Sawhney & Prandelli, 2000) and other users of the platforms.

One of the new technologies that has emerged from the advent of the Internet and the Web 2.0 is social media. Social media has increased communication capabilities amongst the general public since the turn of the century, as the masses have adopted these tools in their everyday online interactions. The use of social media in a business context has also increased significantly (Haefliger *et al.*, 2011). In the context of small and medium sized enterprises (SMEs), it becomes even more relevant to study how social media tools can benefit these firms, since the tools are inexpensive to use, are very familiar to customers, as they are used to interacting with them in their everyday lives, and allow firms to reach significant amounts of current and potential customers. These trends suggest important practical and academic value to examining the impact that social media tools can have on both new product development (NPD) and product life cycle (PLC) outcomes (Marion, Barczak, & Jultink, 2014).

By analyzing how SMEs use social media tools to support different business activities, this paper aims at understanding how social media tools can be used in the product life cycle phases of SMEs. The remainder of this article is structured into five main sections: research method, that illustrates the methodology employed to perform the systematic literature review and the multiple case studies; research background,

that presents the results from the systematic literature review and the main concepts to be addressed; results, which displays the main findings from the multiple case studies; discussion, where the results are interpreted; and finally, conclusion, which put forward managerial and academic implications, along with limitations to this research project and its findings.

4. RESEARCH METHOD

4.1 Systematic literature review

A systematic literature review was performed and used as background for this research based on Conforto *et al.* (2011). The selected keywords used in the five selected databases yielded 552 results. After three rounds of analysis and screening, the number of articles used in the systematic literature review was 78 (references from the systematic literature review are available in the second section of the Biography). The selection process is represented in Table 6. The aim of the systematic literature review was to identify which articles from the existing literature studied the use of social media tools in a specific product life cycle phase. These articles were analyzed and summarized in the following section. This literature review provided solid foundation and validity for the production of the interview grid, while demonstrating the importance and relevance of this research topic. It has also revealed the need for researchers to study how social media tools can be used throughout the entire product life cycle phases, and more specifically in the SMEs context.

Table 6

Systematic literature review selection process

Process	ABI/INFORM	EBSCO	Science Direct	SCOPUS	Web of Science
Total results	61	68	2	236	185
First analysis	513				
Abstract reading	123				
Final results	**78**				

4.2 Research design

The systematic literature review provided insights on how social media tools have been studied and used in specific product life cycle phases, but does not exclusively cover how small businesses integrate these tools throughout their product life cycle activities. Therefore, to appropriately answer the research question of "how social media tools can be used in the product life cycle phases of SMEs", this study uses a multiple case studies design, as it has been advanced that evidence collected from multiple cases are often considered more compelling (Herriott & Firestone, 1983; Yin, 2003). Furthermore, case studies are useful for exploring topics in which there is a relative lack of theory (Yin, 1994), and useful for describing and generating new theory in under-investigated fields. Given the nature of this study, a qualitative method was used to collect and analyze data. Qualitative methods are valuable to obtain a novel and unique understanding of existing phenomena (Dubois & Gadde, 2002; Yin, 2002). Convenience sampling was used to select the studied cases, based on the concept of theoretical sampling (Bryman & Bell, 2007), where cases have been selected with the explicit intention of examining how SMEs utilize social media tools in each of the product life cycle phases, and with the expectation of developing new insights on this research topic.

4.3 Data sources

This study relies on data collected during semi-structured interviews of approximately 30 minutes with relevant members of the consulted firms. The respondents have leadership roles and, either interact directly with social media, are responsible for innovation processes, or collaborate with external parties for different product life cycle activities. The interview grid[5] consisted of 24 open-ended questions. These questions were developed based on the social media tools and product life cycle phases identified as relevant in the systematic literature review. The nature of semi-structured interviews has allowed for additional questions to be asked to generate deeper insights on specific topics. The interview was structured in four different sections: 1) general questions about the business and its products, 2) questions about innovation and product development processes, 3) questions on how the business integrates and collaborates with external sources throughout the product life cycle phases, and 4) questions on how social media tools are used by the firm for tasks during each of the product life cycle phases.

4.4 Selected case studies

The definition of products proposed in the research background section highlights three different categories of products: tangible products, intangible products, and services (Saaksvuori & Immonen, 2008). For each category of product, two firms were selected, for a total of six firms in order to provide additional external validity. The different categories of products were judged to be very important when studying this phenomenon, which is why this factor was taken into account when selecting the participating firms. These cases were therefore selected in order to understand how social media tools are used in the different product categories' life cycles. The firms operated in different industries: jewelry, construction, business

[5] The interview grid (French version) is presented in Appendix B, and the consent form (French version) is presented in Appendix D.

intelligence applications, communication management platform, financial services, and marketing and sales consultation. Three of the selected organizations have existed for three years or less, while two of them have been around for approximately 15 years, and 45 years for the sixth. They all have twelve employees or less, and their product offering ranges from one to approximately one thousand. Table 7 presents the characteristics of the six interviewed firms.

Table 7

Description of the multiple case studies participants

	Enterprise TP1	**Enterprise TP2**	**Enterprise IP1**	**Enterprise IP2**	**Enterprise S1**	**Enterprise S2**
Product category	Tangible products	Tangible products	Intangible products	Intangible products	Services	Services
Industry	Retail business (jewelry)	Construction (distributor)	Business intelligence (IT)	Communications management (sports)	Financial services	Marketing and sales consultation
Years of existence	45 years	17 years	3 years	1 year	1,5 years	15 years
Number of employees	4	12	11	6	3	11
Respondent role/title	Director	Store manager, Marketing project manager	Business development manager	Chief business development officer	Director	Marketing advisor
Number of products offered	~ 1000	~ 300	3	1	2	18

5. RESEARCH BACKGROUND

This research background is based on a systematic literature review, which was performed in order to identify research results covering how social media tools can support the entire product life cycle. It also served to collect significant insights as to how organizations use these social media tools for their different activities along the product life cycle. Relevant bibliometric information is synthesized in this section, after which the research background and relevant topics will be presented, based on the findings from the systematic literature review.

The bibliometric information is presented according to four criteria considered relevant to this research, and to offer a proper overview on how research has evolved on the subject. The criteria are: year of publication, research approach, research method, and business size studied.

The 78 selected articles were first classified by their year of publication. As illustrated in Figure 9, these results provide an overview of the evolution of the use of social media tools in the product life cycle phases within the existing literature. The first article on this research topic was published in 2005. There seems to be an increased interest in this research topic between the years 2008 and 2013, which suggest that this field of research is relatively recent. However, a decrease in the topic's research interest, or a shift towards more specific keywords not initially identified in this systematic literature review may explain the decrease in the number of publications in 2014.

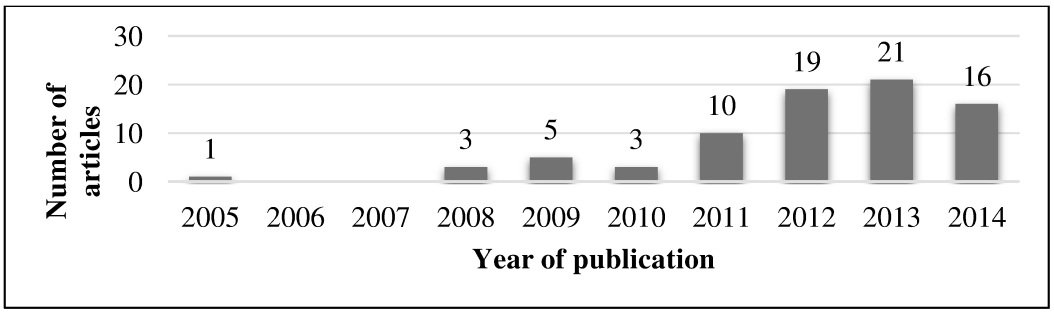


Figure 9. Articles from the systematic literature review by year of publication

Another important and relevant aspect to discuss from the systematic literature review is the research approaches used in the 78 articles. This analysis also allows us to better understand how the phenomenon under study has evolved. 60% of articles based their analysis on qualitative data, 30% on quantitative data, and only 1% used a mix of qualitative and quantitative data. The important use of qualitative approaches suggests that the use of social media tools in the product life cycle phases is still in its exploratory stage.

The classification of the research methods can help guide future researchers as to how they should approach their study of the use of social media tools in the product life cycle phases. A wide range of research methods were employed in the 78 selected articles and are presented in Figure 10. A large majority of these studies have been single case studies (33 articles, 42,3%) and multiple case studies (13 articles, 16,7%). These results are not surprising as case studies are preferred methods when it comes to studying a contemporary phenomenon within a real-life context (Yin, 2003), such as enterprises in this research context.

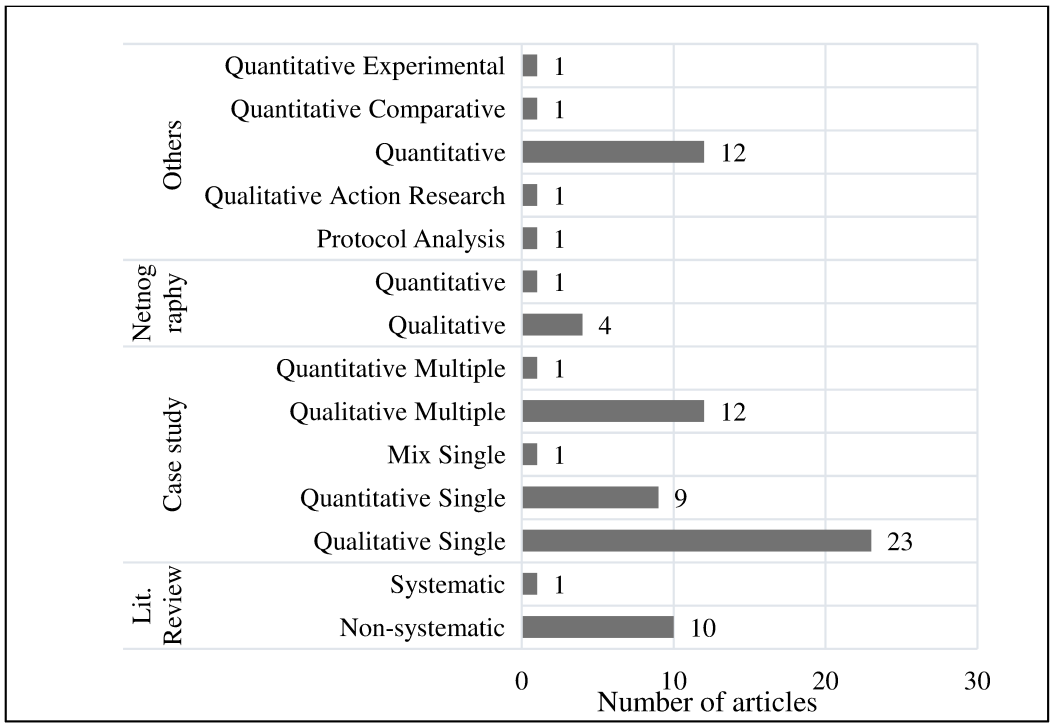


Figure 10. Articles from the systematic literature review by research method

The systematic literature review did not focus solely on SMEs, as only 19% of the articles focused on such a context, compared to large organizations. Therefore, the lack of literature in the use of social media tools in SMEs claims for further research in this context, and is the foundation to this research project. However, these results reflect the reality of businesses as Prandelli *et al.* (2006) highlighted that only large companies and multinationals utilize the Web and social media to its fullest potential. The distribution of business sizes from the systematic literature review is presented in Figure 11.

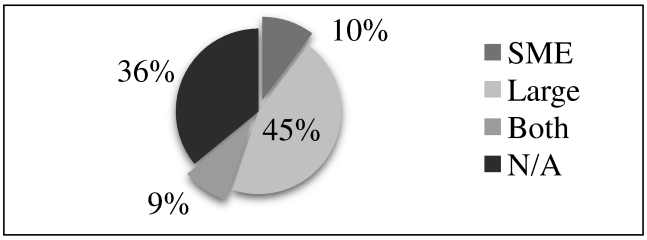


Figure 11. Articles from the systematic literature review by business size

5.1 Web 2.0 and social media

The emergence of the Internet has certainly been the biggest technological enabler over the past few decades. The concept of Web 2.0 has emerged from these technological advances supported by the Internet, and a rising interest from companies to capitalize on its capacity to generate, share, and refine knowledge has been identified (McAfee, 2006). The concept has many definitions, and this study uses the definition proposed by O'Reilly (2005) as it best describes and summarizes Web 2.0: "Web 2.0 applications [are] delivering software as a continually–updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an 'architecture of participation' and deliver rich user experiences."

This concept is particularly important when it comes to collaborating and integrating external actors to the firms' processes. In contrast with the Web 1.0 "read-only" environment, the Web 2.0 allowed for dynamic and decentralized pages where users can read, write, and contribute to enriching the value of content, which has empowered them with the ability to be heard by proactive firms (McAfee, 2006; O'Reilly, 2007). Clear benefits throughout the product life cycle for organizations who use Web 2.0 technologies have been identified by McAfee (2006). Amongst these benefits are increased revenue streams, improved communication and collaboration among employees, better customer service, enhanced marketing, and facilitating production and new product development.

An important set of applications that emerged from the Web 2.0 are social media. These are defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content" (Kaplan & Haenlein, 2010, p. 61). These authors emphasize that social media "refers to the online platforms, which individuals and

communities can use to share, discuss, co-create, and modify user-generated content." The content published by users on an online platform is referred to as a user-generated content.

Many companies have turned to social media in order to open participation in innovation and other activities to non-traditional actors, both inside and outside the organization (Dahl, Lawrence, & Pierce, 2014). These online platforms have allowed firms to communicate with customers worldwide, and therefore give them more opportunities to gather valuable information directly from consumers and other non-consumer Internet users. In other words, they have enabled a large number of people to interact and exchange information and ideas about firms and products at low costs (Shirky, 2008). Customers can now participate and perform a variety of tasks traditionally performed internally, ranging from idea generation and screening, to promotion, and customer service support. However, despite efforts to implement such technologies, a lack of guidelines regarding when and how they should be implemented has not allowed firms to reap proper benefits for these initiatives in product development (Chirumalla, 2013), and marketing (Kaplan & Haenlein, 2012).

In the business context, social media's clear advantage on traditional methods is its inexpensive nature. These benefits become ever so relevant in the SME context, where resources are often scarce, and their opportunities to collaborate with consumers and reach a large audience of potential customers are limited. However, Haavisto (2012) highlighted that, to be beneficial for firms, the active participation of consumers is essential, which is where the main challenge in successfully using social media tools resides. Nonetheless, the ability to communicate with a large audience, turning one-to-one or one-to-many communications to many-to-many communications, has caught entrepreneurs' attention, causing the use of social media tools to increase significantly in the last decade (Haefliger et al., 2011). From the customers' perspective, social media has empowered them to be active in the

exchange process, as their opinions will most likely be heard, and might eventually contribute to new or improved products and services.

Many social media categories have been identified in the literature, and this research uses a combination of both Kaplan and Haenlein (2010), and Wyrwoll's (2014) categorization of social media, which has allowed us to identify 11 social media categories, based on their specific features, characteristics, and the way customers interact with each tool. These social media categories are presented in Table 8.

Table 8

Social media categories

Categories	Description and characteristics	Examples	Authors
Blog	Entries are usually produced by a single author, and are displayed in reverse chronological order, presenting the most recent entry at the top of the page.	Mashable, Business Insider	Kaplan & Haenlein, 2010; Wyrwoll, 2014
Forum	An online discussion site where users can hold conversations in form of posted messages.	SitePoint, DigitalPoint	Wyrwoll, 2014
Location sharing and annotation	This platform applies location-based services that enable groups of users to share their current location and annotations.	Foursquare, Loopt, Facebook Places	Wyrwoll, 2014
Media sharing/ Content community	Registered users can upload their content and share it with specific users or provide it to the public.	YouTube, Flickr, Slideshare	Kaplan & Haenlein, 2010; Wyrwoll, 2014
Microblog	Allow users to broadcast short, real-time messages. It differs from blogs, because content units are limited in length.	Twitter	Wyrwoll, 2014
Question and answer	Users can pose questions and everyone can answer them. Answers can often be rated by others.	Ask, Blurtit, Yahoo! Answers	Wyrwoll, 2014
Rating and review	Allow users to rate and comment on products and services, by a single click, while reviews are written comments.	Qype, Ciao, TripAdvisor	Wyrwoll, 2014
Social network	Social network sites allow individuals to create a profile and connect with a list of other users.	Facebook, LinkedIn, Xing	Kaplan & Haenlein, 2010; Wyrwoll, 2014
Collaborative project	Enable the joint and simultaneous creation of content by many users.	Wikipedia, Delicious	Kaplan & Haenlein, 2010
Virtual game world	This three-dimensional environment allows users appear in the form of personalized avatars and interact in a game context, in order to achieve a specific goal.	World of Warcraft, EverQuest	Kaplan & Haenlein, 2010
Virtual social world	Allow inhabitants to choose their behavior more freely and live a virtual life similar to their real life in a 3D environment.	SecondLife	Kaplan & Haenlein, 2010

In addition to the 11 social media categories originally identified and presented in Table 8, seven other tools and platforms were studied in a product life cycle context and emerged from the systematic literature review.

1. Idea generation platforms are developed with the purpose of generating new ideas from the crowd of users, and also evaluating and screening the proposed ideas. Huang, Vir Singh, and Srinivasan (2014) noted that these platforms are different from online contests, or crowdsourcing contests, as each participant help evaluate and improve each other's contributed ideas.
2. Co-creation platforms, on the other hand, is an online platform where communities of interest are created, and where members of these communities can participate by sharing ideas, collaborating to improve these ideas, and receive continuous feedback from the organizing firm (Ind, Iglesias, & Schultz, 2013).
3. The third one identified is the contest and idea competition platform, which, as the name mentions it, is a contest to either fulfill a need identified by the organization or the customers, or find solutions to an existing problem. Users of the platform can rate and review other participants' ideas (Poetz & Schreier, 2012).
4. Podcasts and vodcasts are defined as digital recordings of a radio or video broadcast, made available for download over the Internet (Bierma, 2005). It allows users to share content, opinions, and ideas over the Internet.
5. Project development platforms are the fifth identified form of social media, and consist of platforms where members create a profile and can link with other members to stimulate them to propose ideas and concepts, share videos and other content, and engage in innovation efforts (Angehrn, Luccini, & Maxwell, 2009).
6. Bookmarking sites are simple to use interface, where users can organize and share bookmarks on the Internet (Grahl, Hotho, & Stumme, 2007). These

websites are often referred to as social media sites as they allow for commenting and discussions on the displayed bookmarks.

7. Finally, online innovation platforms are different from the other idea generation platforms, as they encourage users to not only share ideas, but also share experiences, and test and design products (Bengtsson & Ryzhkova, 2013).

Although these additional platforms integrate social media tools initially identified in our study, we felt it was important to study them separately, which is justified by their orientation towards very specific business goals, they integrate specific tools, and the participating businesses interact with customers in very unique ways through each of these platforms. Many of the additional platforms and tools were only studied in one article of the systematic literature review. On the other hand, the idea generation platform was studied in 31 articles. The most studied social media tool is the rating and review tool (47 articles), which allows for screening and evaluating ideas. The comment feature of this tool is also employed in many other social media platforms, as it improves interactions amongst users. The second most studied platform was social networks, and was found in 32 of the studied articles. Figure 12 presents the percentage of articles studying the different social media tools in a specific product life cycle phase.

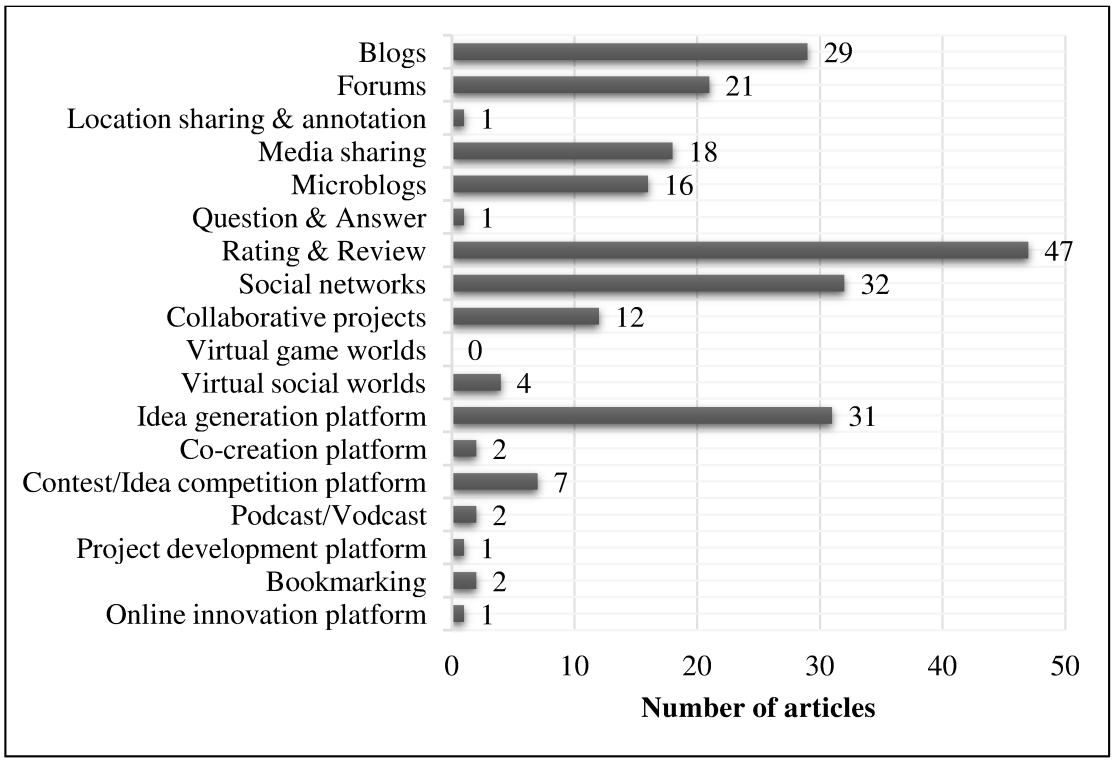


Figure 12. Use of social media in articles from the systematic literature review

Blogs were studied in 29 articles, and often serve a very specific purpose. They are often designed to serve as support to another platform, where the firm can share information to customers in support to their idea generation platform, for example.

5.2 Product life cycle

The previously mentioned technological advances have allowed firms to manage and collaborate with external sources for innovation purposes, and other activities typically performed exclusively by employees inside the organization. The relevance and interest for specific collaboration techniques and tools to be used in the different product life cycle phases was highlighted by Orcik, Tekic, and Anisic (2013). The product life cycle is defined as “a predictive instrument for forecasting marketing requirements and assisting in the planning of long-term strategies” (Wood,

1990), and was first introduced in the 1950s to explain the expected life cycle of a product or service, from an idea to its obsolescence (Orcik *et al.*, 2013). This concept has been defined in many ways, and with different numbers of phases. In this research, the well-referenced product life cycle phases proposed by Saaksvuori and Immonen (2008), and Stark (2005) were retained. Furthermore, products were defined as followed: "There are three kinds of products: 1) goods meaning physical, tangible products; 2) services; 3) intangible products meaning non-physical products that are not services" (Saaksvuori & Immonen, 2008). The five phases of the product life cycle are presented in Table 9.

Table 9

Product life cycle phases

Phases	**Description**	**Authors**
Planning Imagination	Consists of the customer and market segmentation, along with the initial idea generation and selection of the new product on a generic and abstract level.	Saaksvuori & Immonen, 2008 Stark, 2005
Introduction Definition	Involves the definition and designing of the new product as well as designing its production and delivery to the markets.	Saaksvuori & Immonen, 2008 Stark, 2005
Growth Realisation	Consists of producing, manufacturing and bringing the product to market.	Saaksvuori & Immonen, 2008 Stark, 2005
Maturity and Decline Support and Service	Consists of the "active life" of the product. There is a shift from volume production to performance and margin evaluation to increase profitability.	Saaksvuori & Immonen, 2008 Stark, 2005
Retirement	Occurs when the decision to remove the product from the market is made. The product can either be officially removed, or recycled.	Saaksvuori & Immonen, 2008; Stark, 2005

In each of the five phases proposed above, there are specific business tasks and activities that can be performed, and to which are required specific consumer input. After analyzing the 78 articles from the systematic literature review, this study has identified several business activities that have been associated with a specific product life cycle phase. In the first phase, planning and imagination, social media tools were mainly used and studied for idea generation and idea screening tasks. The

introduction and definition phase is characterized by designing products and concepts, along with testing these concepts and product prototypes. In the growth and realisation phase, the selected articles highlight that marketing and promotion tasks are the main drivers for using social media. During this phase, social media tools are also used for tasks surrounding the launch of the product and the customer service support that it entails. During the maturity and decline phase, social media was almost exclusively used for marketing and promotion purposes, taking advantage of the word-of-mouth and viral marketing phenomenon, and customer service support, which was either performed directly by firms' employees, or by customers themselves. The same results appeared for the retirement phase, but product feedback tasks took a bigger role, as they often lead to the recycling of products.

The growth and realisation phase represents the end of the new product development (NPD) process within a product's life cycle (Figure 13), and will be further discussed in the following section.

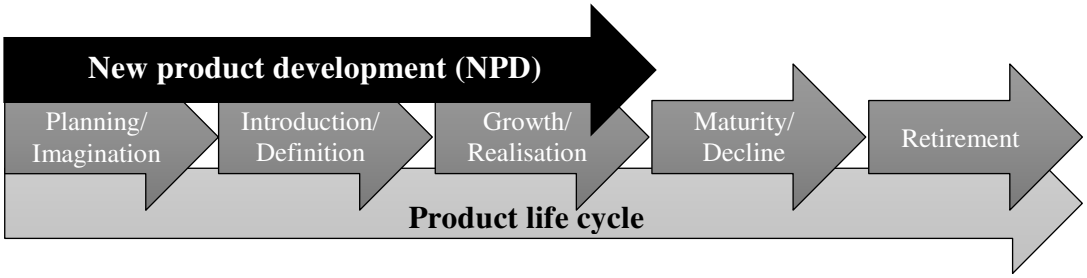


Figure 13. Product life cycle phases and new product development

5.2.1 Innovation and new product development.

There are significant trends in the academic literature on the use of social media tools in the product life cycle. Most of the studies in the systematic literature review focus on the earlier phases of the product life cycle, which corresponds to the NPD: the planning and imagination, introduction and definition, and growth and realisation phases. Figure 14 presents the percentage of articles to study the use of

social media tools in a specific phase of the product life cycle. 68 articles (87,2%) focused on the planning and imagination phase, mainly for the generation of new ideas.

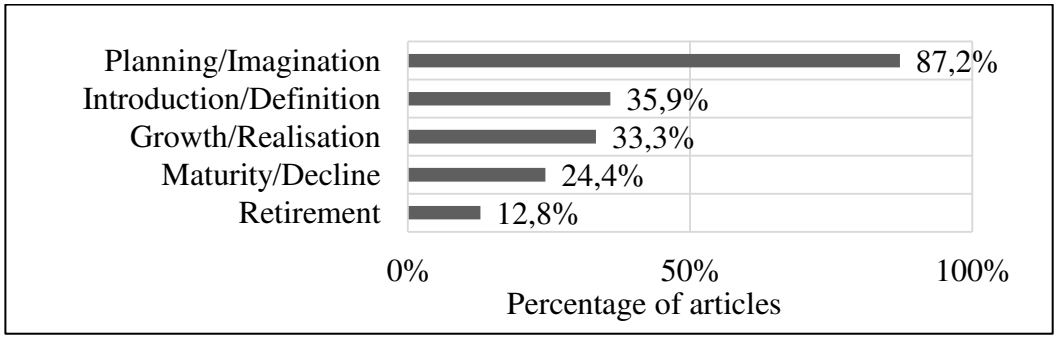


Figure 14. Product life cycle phases in the articles from the systematic literature review

New product development is a high risk process, which often leads to market failure (Sawhney *et al.*, 2011), mainly because firms lack market orientation (Ogawa & Piller, 2006). It is therefore crucial that firms collaborate with users in the early phases of the product life cycle, in order to minimize the risk in the later phases. The role of customers is significant throughout a product's life cycle; they can successfully participate in new idea generation, contribute to the diffusion of information about the product, shape other customers' purchase behavior (Vianello & Mandelli, 2009), and even provide service support to other consumers (Nambisan, 2002).

Several concepts have emerged from the literature to better describe the impact of collaborating with consumers and other external actors to successfully sustain innovation. Amongst these, the concept of co-creation, which is defined by the interaction and collaboration of organizations, groups, and individuals in problem solving jointly generating solutions and most importantly creating value (Russo-Spena & Mele, 2012). Ramaswamy and Gouillart (2010) have highlighted that co-creative organizations benefit from enhancing their capacity to gather useful insight,

reducing risk, and creating value with and for different stakeholders through the development of relevant innovations. In this sense, co-creation differs from mass customization and mass collaboration because it involves the participants in a process that creates value not only for one individual, but for all other participants or users, and favors a two-way flow between the organization and the participants (Ind *et al.*, 2013). The concept of open innovation is also at the core of the literature on social media tools in a product life cycle context. It is described as the inflows and outflows of knowledge in order to accelerate internal innovation processes (Chesbrough, 2003). Enabled by the Internet, open innovation communities have emerged over the last few years as a popular method to integrate customers as part of the innovation process and new product development. Finally, the concept of crowdsourcing is central to the tools studied in this research. It refers to the ability to outsource function originally performed internally by the firm to a generally large pool of individuals answering an open call (Howe, 2008), using the lead user method, online toolkits, or innovation contests. Crowdsourcing is seen by many authors as an opportunity to create value via the sourcing of expertise and labor for low compensation (Scheitzer, Buchinger, Gassmann, & Obrist, 2012; Chandler & Kapelner, 2013). Adamides and Karacapilidis (2006) have identified that Internet technologies, such as social media, that enable high degrees of user interactions have become essential in the innovation process. Furthermore, it has been shown that different tools have different effects on NPD outcomes across the different phases (Boutellier, Gassmann, Macho, & Roux, 1998; Malhotra & Majchrzak, 2004). There is therefore a significant need for future research to focus on the use of co-creation, open innovation, and crowdsourcing tools for the entire product life cycle.

The findings illustrated in Figure 14 show the importance of customer input in new product development, while also highlighting a lack of academic research to support collaboration in firms' entire product life cycle processes, as only 24,4% and 12,8% of the selected articles study the use of social media tools for the maturity and decline phase, and the retirement phase respectively.

5.3 The small and medium-sized enterprise (SME) context

According to the OECD (2005) the size of a business can be defined based on different criteria: financial assets, and number of employees. The approach using the number of employees to measure the size of a business is widely used, since the data is easily accessible and easy to collect. SMEs are therefore defined as a business establishment with approximately 1 to 249 paid employees. Petersen *et al.* (2002) have suggested that open innovation, supported by Web-based technologies, could offer several benefits for SMEs in order to balance out their size disadvantages towards larger firms. This is where the use of social media tools become relevant in the SME context, since they can reduce the time and cost involved in conducting market research, idea generation, and idea screening efforts and therefore accelerate the NPD process (Roberts & Candi, 2014). However, van de Vrande, De Jong, Vanhaverbeke, and De Rochemont (2009) have advanced that the majority of academic literature on this research topic focus primarily on large, multinational corporations. Moreover, additional work on open innovation activities in the SME context is therefore needed (Colombo, Laursen, Magnusson, & Rossi-Lamastra, 2012). These propositions are in line with the findings from the systematic literature review conducted for this study, where only 19% (15 articles) of the selected articles studied the use of social media tools in the PLC phases of SMEs. Other factors make SMEs great candidates for co-creation, open innovation, and crowdsourcing efforts, such as their high degree of customer orientation (Rogers, 2004), their growing importance and contribution to the global economy (Chesbrough 2010), and their ability to quickly identify innovation opportunities (Hutter, Hautz, Repke, & Matzler, 2013). However, Gans and Stern (2003), and Bianchi, Campodall'orto, Frattini, and Vercesi (2010) highlighted that smaller firms experience more difficulty in successfully implementing innovation and product development processes, which is why further research and guidelines need to be developed to better understand how SMEs effectively use Web 2.0 technologies to support such activities.

6. RESULTS

The semi-structured interviews results are presented in three separate sections. The first section presents findings on the interviewed SMEs' innovation and product development processes. The second section highlights the collaboration process with external sources. The final section shows the results on how social media tools are being proactively used in the product life cycle phases.

6.1 Innovation processes in SMEs

Data collected from the interviews show that the main drivers for innovation in SMEs are still the owners or entrepreneurs themselves. The generation of new product and service ideas, a task from the planning and imagination phase, often emerge directly from them, and their implementation also depends on these actors. These results are in line with previous research on innovation in small and micro-sized firms (Hutter et al., 2013).

Interviewee TP1: "It's the owner and I (the director) that handle it (idea generation) in an informal way."

Interviewee S2: "It (idea generation) takes place between the three associates. It usually starts with one of them who shares his idea with the others, and then the project gets going."

Some enterprises have identified sources of information from outside the business. Such sources are partners, manufacturers, and customers. Discussions with partners have allowed some firms to launch new services and be better oriented with the market. The same goes with interactions with customers, which have allowed businesses to develop and co-create products better suited to their needs.

Manufacturers, on the other hand, provide information and support to the distributing firm, to help them sell and market the products they offer.

Interviewee S1: "From outside the organization, we've had discussions with a specific partner for the introduction of our second service."

Interviewee S2: "The client is also responsible for new ideas. For a specific service, it's our clients that demanded it. We listen to our clients and we adapt our services and offers based on their demands."

Once ideas are generated businesses usually undergo specific processes and procedures to introduce those new products and services to market, which typically correspond to the introduction and definition phase of the product life cycle. However, some of the interviewed firms have very informal product development processes that differ based on the product or service they are trying to develop.

Interviewee S1: "No, not really, it (the new product development process) depends on the project."

Although, in some firms ideas emerge in an informal way, other firms have specific steps they follow to develop those ideas into marketable products, with roadmaps and timetables to coordinate the efforts of employees involved within the established deadlines.

Interviewee IP2: "Officially, once we have decided to adopt an idea, whether it's by ourselves or through brainstorming, […] *we develop a roadmap. The one responsible for our technology designs steps for the programming, and then we coordinate the efforts of our two programmers, one integrator, and one designer. A roadmap with dates, it gives us a timetable."*

In other words, the interviewed SMEs generally innovate and develop new products in a very unstructured manner, without specific and explicit development process. The ideas are generated internally by the business's owner or entrepreneur, and then, depending on the product to be developed, the processes may differ, and different actors from within the company may be required to participate in its development.

6.2 Integration of external sources in SMEs' products life cycle phases

Interviewees from all of the six firms agree that integrating and collaborating with consumers in different business processes can benefit their enterprise. In line with Hutter et al.'s (2013) findings, there is often a very close relationship between the firms and the final customer, who can be innovative and provide good ideas or inspiration for the companies' idea generation process.

Interviewee S1: "Yes, they (consumers) can provide good ideas, not always good ones, but they can be a good source of inspiration."

Collaborating with customers can also offer several marketing benefits. Creating great relationships with them is essential to benefit from word-of-mouth, as this, along with references, is the main way these businesses increase their customer base. Other marketing benefits are increased customer service support and the collaboration allows the firms to get the customers' pulse as well as feedback on their products and their purchasing experience.

Interviewee IP1: "Yes, we will get the real pulse of our customers."

Interviewee S1: "Yes, I think, we're not there yet as a business, but yes, being able to create good relationships with them, so that a customer then recommends us because we've collaborated with him is a good business objective to have."

Organizations need to perform specific tasks and activities in each of the five product life cycle phases. Whether it be idea generation during the planning and imagination phase, concept and design testing in the introduction and definition phase, promotion or marketing tasks in the growth and realisation phase, service support in the maturity and decline phase, or simply collecting product feedback during the retirement phase, all of these activities require specific input in order to be successful, and therefore create value for their customers. The following section addresses how the interviewed firms have collaborated and integrated external sources to their organization in each of the five product life cycle phases.

6.2.1 Planning and imagination

Half of the interviewed firms collaborate with customers when it comes to identifying new product ideas and customer needs. In all of these cases, direct, one-on-one conversations are used to gather feedback about existing products to improve them, create new features and applications, or generate ideas for an entirely new product or service.

6.2.2 Introduction and definition

During the introduction and definition phase, three of the six SMEs seek input from external sources, mainly customers, to make sure the idea is being developed with the outmost market orientation. For these SMEs, the main objective during this phase is to make sure that the product or service being developed is in line with the customers' needs and expectations. Surveys are developed in order to confirm potential customers' interest in the product, along with informal surveying of current customers to once again make sure that new products have all the features necessary to match the market expectations.

Interviewee S1: "A survey was developed and administered during the creation of our business plan, prior to launching the service, to confirm customers' interest towards that service."

Interviewee P1: "Sometimes, when we are interested in launching a new product line, before saying yes or no, we consult some clients to see if it is something that would interest them."

6.2.3 Growth and realization

All three firms who actively collaborate in the growth and realisation phase do so for different purposes. The first one collaborates with customers for marketing purposes by posting the new products on social media and using their fan base to reach additional customers. The second one, the distributing firm, closely collaborates with the manufacturer to properly launch the new products. The manufacturer provides them information and marketing tools, such as videos and promotional articles, to properly introduce the product to market. The third one, on the other hand, works closely with customers for customer service support. They communicate with their customers to make sure the new products correspond to the customers' expectations and needs, while providing additional support to help new customers learn how to use their platform.

Interviewee IP2: "In this phase, it is even more important for us to be close to our customers, because they are the ones who will be able to tell us if the platform works for them, if it meets their needs, and if it corresponds to their expectations."

6.2.4 Maturity and decline

The maturity and decline phase is where most firms collaborate with external sources. The main purpose of their collaboration is for promotion, customer service,

and to benefit from references through word-of-mouth. Some businesses use social media to leverage their different products and benefit from the interactive nature and sharing capabilities of these platforms to increase their promotional reach. Customers therefore become partners and collaborators to the firms by sharing and promoting the content that is published. For others, since products and services are launched jointly with partners, they collaborate to develop marketing campaigns. When it comes to references, SMEs try to develop close relationships with their current customers in order to benefit from their social networks and increase their customer base. This is especially true for the services and the intangible products industries.

Interviewee IP2: "For now, our biggest business generator is the contact that we were able to make with clients that have been referred to us by current customers."

Interviewee S1: "Because of the nature of our service, we meet with every customer (by phone or in person) after the service is done, and we always ask for feedback on our service, if the customer is satisfied, and if he can refer us to other potential clients. In the financial services industry, there is a lot of referencing. We have a direct link with our customers, and we use it."

The tangible products distributor collaborates closely with its manufacturer during the maturity and decline phase, in the same way he does for the launch of products. The manufacturer produces a lot of promotional and explicative content that the distributor uses and shares with its clients to continuously support its sales.

6.2.5 Retirement

None of the selected firms collaborate with external sources when it is time to remove a product or a product line from the market. In some cases, the SMEs are relatively young, with only one to three years of existence, and are not at a point with their products where retirement is needed. In other cases, when the decision is made

to remove a product from the market, the decision is based on insufficient sales or a lack of customer interest, and the company removes it on their own terms, without collaboration.

Interviewee PT1: "No, when it (a product, or product line) doesn't work, it doesn't work, we remove it."

Table 10 presents which of the interviewed firms actively collaborate and integrate external sources in each of the product life cycle phases. Organizations that collaborate in a passive way were not included as they don't make a conscious and explicit effort to collect information from external sources. Rather than being active, they wait and when feedback or external input presents itself, they use it, without much effort to collect them. This is why this study focused on the active collaboration and integration of external sources to gather information in the different product life cycle phases.

Table 10

Collaboration and integration of external sources in the PLC phases of the multiple case studies participants

	Enterprises						
PLC phases	TP1	TP2	IP1	IP2	S1	S2	**Total**
Planning and imagination	X			X		X	3
Introduction and definition	X			X	X		3
Growth and realisation	X	X		X			3
Maturity and decline	X	X	X	X	X		5
Retirement							0

These results illustrate that interviewed SMEs interact more than others with external sources throughout their PLCs. However, none of the them collaborate with external sources for the retirement phase, either because their products are not yet through the maturity and decline phase, or simply because they do not feel the need to collaborate during this phase.

6.3 Integration of social media tools in SMEs' products life cycle phases

Social media tools offer a great opportunity for companies to interact and collect information from external sources. Firms can also benefit from interactive capabilities such as sharing, co-creating, and the possibility to access large communities and to leverage the network effect that these platforms provide. These benefits become even more relevant in the SME context as they can be exploited at a relatively low cost.

Interviewees were asked to describe their company's perception towards adopting new technologies. Every respondent mentioned an openness towards technologies that could benefit their business, whether it be social media platforms, different IT software, or other technologies. However, in some cases, it was also noted that the interviewed firms lacked sufficient resources, such as time, knowledge or workforce, to successfully adopt, implement and use new technologies.

Interviewee IP2: "We are very open to integrating and using new tools and technologies if they can help us."

Interviewee S1: "We only see positive from new technologies, we're not scared of it. If a technology has been proved to work and it can help us, we are open to using it."

Interviewee TP1: "We are very open, there is only a lack of time. However, for example, with social media, apart from Facebook, we don't use any other, and it's really because of a lack of time, and not a lack of interest."

Our findings illustrate that social media tools are almost exclusively used during the growth and realisation, and the maturity and decline phases as four of the six interviewed firms used social media tools to support their activities during both of these phases. Only one respondent mentioned the use of social media during the

planning and imagination phase, and none during the introduction and definition, and retirement phases. IP1 does not use social media tools at all. S2 only uses them in a passive way, to collect feedback and gather information about market trends, but does not collaborate or interact with customers or other actors through these platforms. These results are illustrated in Table 11.

Table 11

Use of social media tools in PLC phases of the multiple case studies participants

	Enterprises						
PLC phases	TP1	TP2	IP1	IP2	S1	S2	**Total**
Planning and imagination				X			1
Introduction and definition							0
Growth and realisation	X	X		X	X		4
Maturity and decline	X	X		X	X		4

There are only four social media tools used in the six interviewed SMEs (Table 12). These results represent the most commonly used social media tools and platforms such as Facebook and LinkedIn (social networks), Twitter (microblog), and YouTube (media sharing). All four of these platforms have integrated rating and review tools, where users can “like”, rate, comment, or share other users’ published content. It was previously mentioned that the biggest barriers for technology adoption within the interviewed firms was a lack of time and knowledge. It is therefore not surprising that these SMEs almost exclusively use popular and common platforms rather than more specialized tools to collaborate with external sources throughout their products’ life cycles.

Table 12

Social media tools used in PLC phases of multiple case studies participants

	Enterprises						
Social media tools	TP1	TP2	IP1	IP2	S1	S2	**Total**
Social networks	X	X		X	X		4
Rating & review	X	X		X	X		4
Microblogs		X		X	X		3
Media sharing				X			1

Considering that four social media tools have been used to collaborate and support specific business activities, their use in each of the product life cycle phases is described in the following section.

6.3.1 Planning and imagination.

None but one of the SMEs interviewed actively use social media tools during the first phase of the product life cycle. However, IP2's use of social network sites (Facebook and LinkedIn) during this phase is limited to new customer acquisition, and not innovation tasks such as idea generation, idea screening, or idea feedback.

Interviewee IP2: "I use them (Facebook and LinkedIn) mainly to generate interest towards our brand, and to acquire new clients."

Even though this study aims at understanding how SMEs actively use social media tools to support product life cycle activities, it is interesting to point out that all but IP1 passively use social network sites in the planning and imagination phase. Without seeking interaction, they are still listening in at what customers post and discuss on these platforms to gather market insights and identify customer needs.

Interviewee TP2: "We use social media to see what our clients need. We visit specific and specialized groups and pages to see if someone mentioned a specific need."

Interviewee S1: "We are listening in, but not by asking for new ideas in an active way."

6.3.2 Introduction and definition

During the introduction and definition phase, none of the interviewed firms actively use social media tools. Even when ideas emerge from outside the organization, the development process is done exclusively within the company. Traditional methods in a closed and controlled environment, such as surveys and contests at an event, were used by S1 to get a deeper understanding of the market and to test their concept on potential clients.

6.3.3 Growth and realization

Social network sites, microblogs, media sharing sites, and rating and review tools are used during the growth and realisation phase, by four of the six interviewed firms. They use these platforms to share content and information about their new products to create brand awareness, promote new products and services, and other marketing tasks. These tools are used to support the launch of the new products and services by leveraging the interactive nature of the platforms. Facebook, LinkedIn, Twitter, and Instagram are the platforms used to perform these tasks. Advertising on Facebook is used to target specific consumer groups by two of the organizations. Through these initiatives, however, firms are not able to tap into benefits from co-creation, open innovation, or crowdsourcing approaches, as most of the content is generated by the firm. They instead try to benefit from word-of-mouth and from the viral potential of these social media platforms.

Interviewee TP2: "I post pictures, promotions, and videos. They are marketing videos and informative videos that are produced by our manufacturer to help us promote new products and better serve our customers."

Interviewee IP2: "Yes, in fact, we plan on doing a press conference to launch our new platform, and we will integrate it on our different social media pages, create a "buzz" around our launch on the Web. We use Facebook's advertising a lot, it helps us a lot."

The S2 firm, on the other hand, is only present in a passive way during the growth and realisation phase. Passive means that they do not post content on social media platforms. Rather, they consult business blogs to see what is being done and launched on the market, and how other consulting firms promote their own service launches.

6.3.4 Maturity and decline

Four of the interviewed firms also use social media tools (social networks, microblogs, media sharing, and rating and review) to support their activities in the maturity and decline phase. Much like during the growth and realisation phase, SMEs mainly use social media tools for promotion and marketing purposes. However, during the maturity and decline phase, organizations also collect product feedback, and perform customer service support on social media. The customer service support becomes very important for some of these businesses as social media tools allow them to interact and communicate directly and in real time with their customers. They are able to create additional value for their customers directly on those platforms.

Interviewee IP2: "Technical support will mainly be done on Twitter. We will also be listening to comments on our product to improve it."

6.3.5 Retirement

All of the interviewed firms do not feel the need to be active on social media during the retirement phase. Some of the interviewed SMEs are young and

developing, and their products aren't close to the retirement phase. On the other hand, other companies feel that social media platforms should be used exclusively to display positive content on the brand, and that the retirement or the recycling of a product or a service should be done internally, and with the participating partners.

Interviewee TP1: "It rarely happens. If we see that a product or a line of products does not work, we simply remove it, without talking about it."

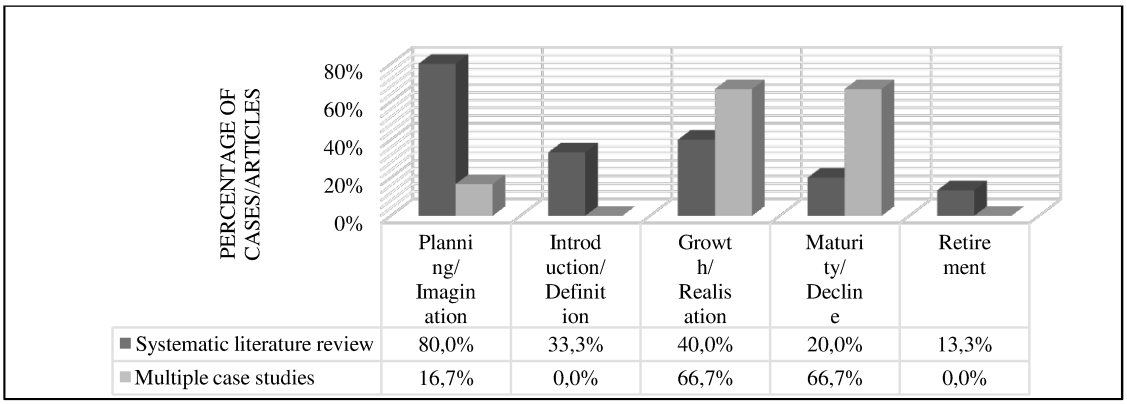
Interviewee S1: "Our perception is to demonstrate positive on social media, so there won't be any post directly from our enterprise. However, we passively listen for feedback."

Only four of the six interviewed SMEs use social media in a proactive way to collaborate with customers or partners, and generate value for their products and services through these tools. For these companies, social media tools are mostly used for marketing and promotion activities, along with customer service support, and in some cases, business development and customer acquisition.

7. DISCUSSION

Based on the results of the empirical study, it can be concluded that SMEs actively collaborate with customers and other actors through social media to launch a product in the growth and realisation phase, or support product sales during the maturity and decline phase. Furthermore, their lack of knowledge, time, and other resources hinder them in their selection of social media tools to perform specific tasks along the product life cycle phases. Altogether, the six interviewed firms utilize only four social media tools, while this research has identified 18 different tools that can support business activities in different product life cycle phases.

Figure 15 compares how social media tools were used in each of the product life cycle phases of the interviewed firms with the results from articles studying SMEs in the systematic literature review. The academic literature focused primarily on the NPD phases, especially the planning and imagination phase, for innovation purposes. On the other hand, the multiple case studies results show that the interviewed SMEs focus their social media efforts on the growth and realisation (66,7% of cases), and maturity and decline (66,7% of cases) phases. Results have shown that the interviewed firms have very unstructured processes when it comes to innovation and new product development. It is therefore not surprising to see them focus on collaborating for marketing, and customer support. These firms are already close to the market and are very customer oriented when developing new products or services, and do not feel the need to invest further resources in integrating social media tools for these activities.

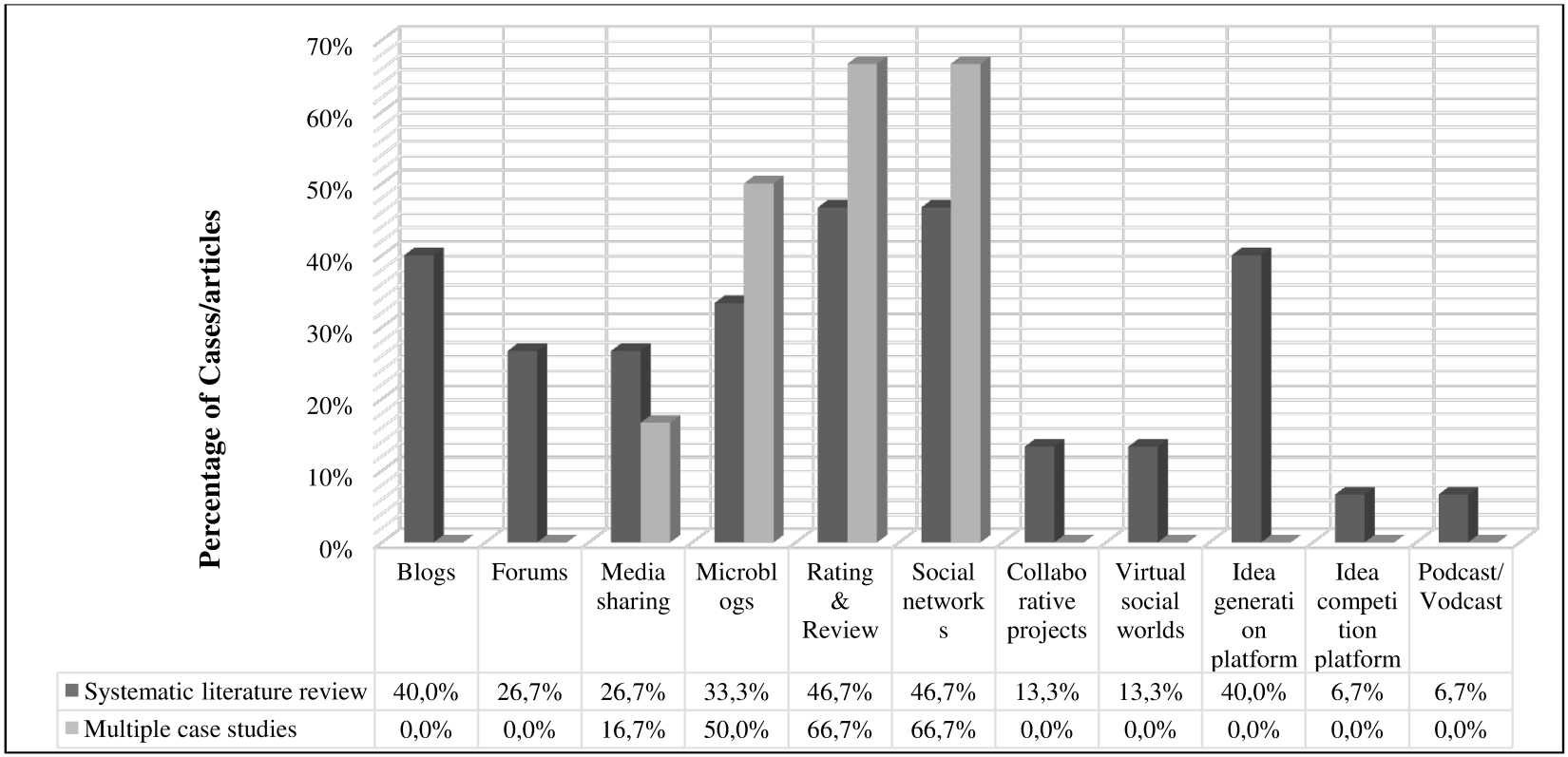


	Planning/ Imagination	Introduction/ Definition	Growth/ Realisation	Maturity/ Decline	Retirement
Systematic literature review	80,0%	33,3%	40,0%	20,0%	13,3%
Multiple case studies	16,7%	0,0%	66,7%	66,7%	0,0%

Figure 15. Comparison of the use of social media tools in PLC phases of SMEs

Figure 16 also compares results from the multiple case studies with findings from the systematic literature review articles which focused on SMEs. Figure 8, however, focuses on the social media tools that were used and studied. Some results from the multiple case studies are in line with the findings from the systematic literature review, as both social network sites, and the rating and review tool were the most used form of social media. These results can easily be explained by the

popularity of such tools in today's society. These tools correspond to websites such as Facebook and LinkedIn, which are social network sites that use the rating and review tool. Since these websites are widely used nowadays, it is not surprising to see businesses with minimum knowledge and expertise on social media to use them as they are familiar and simple tools. Ryzhkova (2012) has also identified that most companies (70,1%) exploit social network sites (e.g. Facebook) and microblogs (e.g. Twitter) for viral marketing and engaging customers in discussions about products. The same reasoning goes for microblogs (e.g. Twitter), and media sharing sites (e.g. YouTube), which are the two other social media tools used by the interviewed SMEs. Furthermore, blogs have raised significant interest in the academic literature, but are currently not used by the interviewed firms. However, two (33,3%) of these firms have advanced the need and interest in developing a corporate blog in the near future, for customer support, and to enhance their other social media efforts.



	Blogs	Forums	Media sharing	Microblogs	Rating & Review	Social networks	Collaborative projects	Virtual social worlds	Idea generation platform	Idea competition platform	Podcast/ Vodcast
Systematic literature review	40,0%	26,7%	26,7%	33,3%	46,7%	46,7%	13,3%	13,3%	40,0%	6,7%	6,7%
Multiple case studies	0,0%	0,0%	16,7%	50,0%	66,7%	66,7%	0,0%	0,0%	0,0%	0,0%	0,0%

Figure 16. Comparison of social media tools used in PLC phases of SMEs

Clear advantages for SMEs to use open innovation approaches for the generation of new ideas, and the development of new products and services have previously been identified. However, this study identified that social media tools were only used once during the planning and imagination phase, for business development, and customer acquisition. None of the interviewed firms used social media tools during the introduction and definition phase to either gather feedback on their concepts and design, or to test their concepts and prototypes. Although there are benefits in exploiting such methods, SMEs often lack resources (time, cost, knowledge) in order to efficiently use them for innovation purposes, and the first two phases of the product life cycle. The lack of resources forces them to turn towards commonly used and familiar platforms, such as Facebook, LinkedIn, Twitter, and YouTube, to perform marketing and customer service support tasks in the later phases of the product life cycle. In both the systematic literature review and the multiple case studies, SMEs neglect the use of social media tools during the retirement phase. Significant benefits can come from collaboration during this phase. These benefits include, amongst others, improved brand image by recycling outdated products and by continuously offering customer service support, important feedback to remove a product, or simply feedback to initiate ideas to develop new products and start a new product life cycle.

No clear distinction could be made as to how businesses operating with different types of products (tangible products, intangible products, and services) use social media tools to support their product life cycle activities. In all three categories, at least one SME used social network sites, and rating and review tools during the third and fourth phases for similar purposes, while only one firm used social network sites during the planning and imagination phase. Business activities differ based on the product or service a company is developing and selling. However, these results support that it is possible for companies to use a specific social media tool and collaborate with customers, or other external actors, regardless of the category of products they deliver.

8. CONCLUSION

The aim of this study was to identify how social media tools can be used in the different product life cycle phases. Based on the academic literature, 18 social media tools and platforms can be used to effectively and successfully support different activities throughout the product life cycle phases. However, empirical evidence has shown that in the SME context, only mainstream platforms are used to collaborate in basic activities of the growth and realisation, and the maturity and decline phases.

8.1 Limitations

Even if the foundation and background of this research is based on a systematic approach, there are certain limitations to this study. A small and medium-sized enterprise was defined as containing between 1 and 249 paid employees (OECD, 2005), and yet, our sample only contained firms with 12 employees or less. Our sample, therefore, did not cover medium-sized enterprises and other SMEs with more important workforces, which may have yielded different results. Furthermore, the sample used seemed more passive in their use of social media, while another sample may have been more proactive in their collaboration efforts over such platforms and tools.

8.2 Managerial implications

Successfully integrating social media to different business activities across the product life cycle offers several benefits for SMEs. First of all, collaboration with both internal and external actors to the firm allows to tap into previously unavailable expertise, creative ideas, as well as the possibility to develop a business culture oriented towards consumers and the market. Furthermore, the integration of customers in the NPD process can generate products better suited for the market, and

increase a brand's image. Beyond the NPD process, Exo B2B (2015), a strategic and operational marketing agency, advances that including social media in marketing to support integrated marketing strategies as opposed to the traditional “push” methods can generate better results. SMEs, in many cases, are still using social media for basic marketing and customer service activities, and further guidelines and best practices need to be developed and made available to them as to how they can integrate their social media efforts in open innovation and co-creation activities.

8.3 Academic implications

Future studies should focus on reproducing the method used with different samples, such as SMEs in diverse geographical locations in order to perform comparative studies. Different samples, consisting of SMEs who appear to be more active on social media, or SMEs with a wider range of employees, to cover medium sized enterprises as well could offer different and interesting results. Petersen et al. (2002) have suggested that Web 2.0 technologies can help and benefit open innovation efforts of SMEs as they minimize the firms’ size disadvantages compared to large firms. It would be interesting for researchers to integrate the three main concepts identified (co-creation, open innovation, and crowdsourcing) in order to clearly understand how SMEs can benefit from them through effective social media efforts. Furthermore, Di Guardo & Castriotta (2014) have proven that the primary cause of failure in projects related to Web 2.0 technologies is a lack of customer engagement, which is why additional research should be conducted in order to provide SMEs with information and guidance on how to engage customers to be active participants on their social media initiatives. Finally, an important avenue for research on this topic would be to identify how the use of social media platforms in the SME context can create value for both the customers and the business throughout the product life cycle.

FOURTH CHAPTER
SOCIAL MEDIA TO SUPPORT CUSTOMER ENGAGEMENT THROUGHOUT THE PRODUCT LIFE CYCLE OF SMES

1. FOREWORD

The following article was authored by me, Jeremi Doyon-Roch, and Elaine Mosconi. My contribution to this article consisted of the performing the systematic literature review, the development of the conceptual framework, based on this literature review, the development of the interview material (grid and consent form), the execution of 11 semi-structured interviews, the analysis of the collected data, along with most of the written content presented in the article. This was performed with the help of Elaine Mosconi, who guided me through the development of the conceptual framework and contributed to the overall presentation and structure of the article. This article has recently been submitted to the Journal of Service Theory and Practice[6].

2. ABSTRACT

Organizations, enabled by technological advancement, are now able to engage customers to support and leverage business activities throughout the product life cycle (PLC). With limited resources, SMEs can take advantage of social media technologies to engage customers in co-creation initiatives. This article proposes a conceptual framework that focuses on the degree of customer engagement support by social media throughout PLC. Firm motivators and impediments, the impact of customer engagement at each of the PLC phases, and firm-related outcomes are all examined in the proposed framework. The findings suggest important motivators and impediments of using specific social media tools to engage customers in business activities throughout the PLC. Research limitations and academic and managerial implications are also proposed.

[6] The proof of submission to this journal is presented in Appendix H.

3. INTRODUCTION

The small and medium-sized enterprises (SME) environment is characterized by continuous, fierce, and increasing competition. To survive and succeed, SMEs need to differentiate themselves by presenting unique value propositions to the market, and continuously creating additional value for their customers. In order to do so, organizations traditionally tried to gather as much accurate information from the market as possible, by performing classical methods, such as focus groups and market research. However, with the rapid development of the Internet, Web 2.0, and social media (SM), open platforms are available for enterprises to connect with consumers worldwide. Customers can now share ideas and information, which was difficult for organizations to gather through traditional marketing research methods (Mahr, 2011; von Hippel, 2005). Research has shown that failures in product and service success is often caused by the firms' lack of market understanding and orientation (Sigala, 2012), and deficiencies in identifying and exploiting customer knowledge (Cooper & Kleinschmidt, 1994). Therefore, collaborating with external sources to the firm for gathering knowledge, support innovation, marketing, internal problem solving, and create additional value across the product life cycle (PLC) is crucial.

Social media tools have emerged to become relevant and essential tools to SMEs, as they are inexpensive to use, they have been adopted by the masses, and they allow firms to reach important numbers of users. There is therefore important managerial and academic value in filling the gap in the existing literature by identifying how SMEs use SM to engage with external sources of information to create value throughout their PLC activities (Marion *et al.*, 2014).

Despite its relevance, this phenomenon has been scarcely studied from the firm's perspective. The goal of this article is to propose such a framework. The research questions that motivated the development of the framework are: Why do

some SMEs use SM to support customer engagement, while others do not? Why do firms use different SM tools to support their customer engagement initiatives? Why does the scope of customer engagement initiatives (i.e., across different PLC phases) vary between SMEs? What are the potential outcomes of conducting customer engagement initiatives for the organizing firms? Therefore, the aim of this study is to build theory that provides answers to these questions, and a deeper understanding of which factors can potentially impact SMEs' implementation of SM customer engagement initiatives.

This article is structured as follows. First, the overall conceptual framework of customer engagement supported by SM is described, along with the main concepts pertaining to this research topic. Then, there is the methodology, which illustrates the method employed for the qualitative interviews. Following are the results, which display the main findings from the interviews and their integration to the conceptual framework. Finally, the discussion and implication section, where the results are interpreted, limitations to this research and its findings are highlighted, and future research directions are proposed.

4. CONCEPTUAL FRAMEWORK

The conceptual framework is presented in Figure 17, where topics concerning SMEs' customer engagement initiatives supported by SM throughout the PLC will be developed. The framework is an adaptation of Hoyer, Chandy, Dorotic, Krafft, and Singh's (2010) conceptual framework of consumer co-creation. The focus of this framework is on the degree of customer engagement, which includes the scope of customer engagement, and the technology employed to support customer engagement, in this case, the SM tools. Two sets of antecedents are then examined, firm motivators and firm impediments. Both these antecedent can potentially affect the scope and the SM tools used to support customer engagement initiatives. Customer engagement initiatives can be implemented and valuable throughout the

five PLC phases. Finally, there are a variety of outcomes for both customers and firms that can emerge from customer engagement initiatives. However, this research focuses on the firms' perspective and firm-related outcomes.

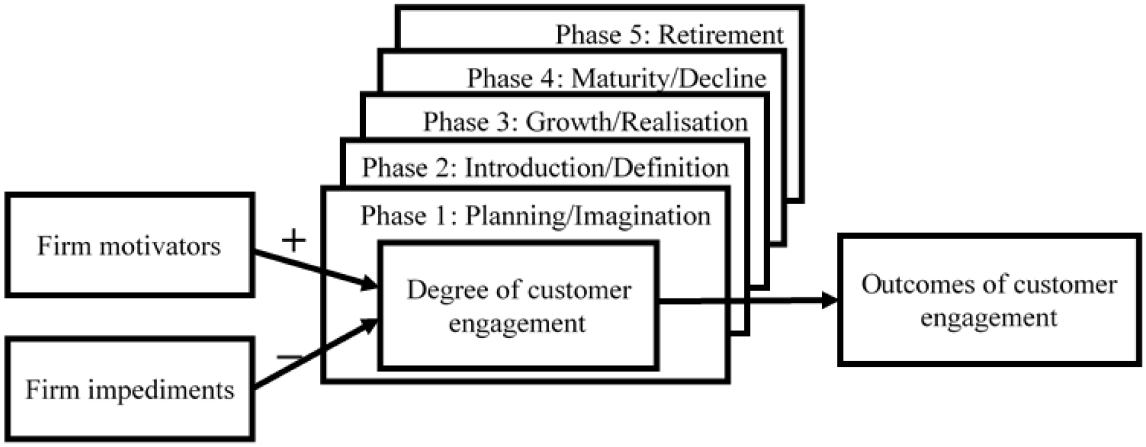


Figure 17. Conceptual framework of customer engagement supported by SM (Adapted from Hoyer et al., 2010)

4.1 Degree of customer engagement

The focus of the framework, the degree of customer engagement, encompasses two dimensions: the scope of the initiative, and the technology employed to support the initiative. The scope refers to the range of PLC phases through which an SME uses SM to engage with customers. Technology refers to the technological tools used to support and enable customer engagement initiatives.

4.1.1 Scope: Product life cycle (PLC) phases

Based on the works of Saaksvuori and Immonen (2008), and Stark (2005), the PLC consists, of five distinct phases through which a product evolves, from ideation to obsolescence, and through each phase and business activity, value can be added and risk diminished (Chase, 2000).

First, the planning and imagination phase, which also consists of the beginning of the NPD process, includes customer and market segmentation activities, along with the generation of ideas for new products on a generic level. Second, the introduction and definition phase involves defining and designing the new product, its production, and its delivery to market. Third, and closing the NPD process, there is the growth and realisation phase, which consists of producing, manufacturing, and launching the product on the market. There is then the maturity and decline phase, which is often referred to as the 'active-life' of the product. Finally, the fifth phase is the retirement phase, which has often been ignored in PLC literature, and occurs when the decision to remove the product from the market is made. The product can then be removed, replaced, or recycled. The PLC phases are represented in Figure 18.

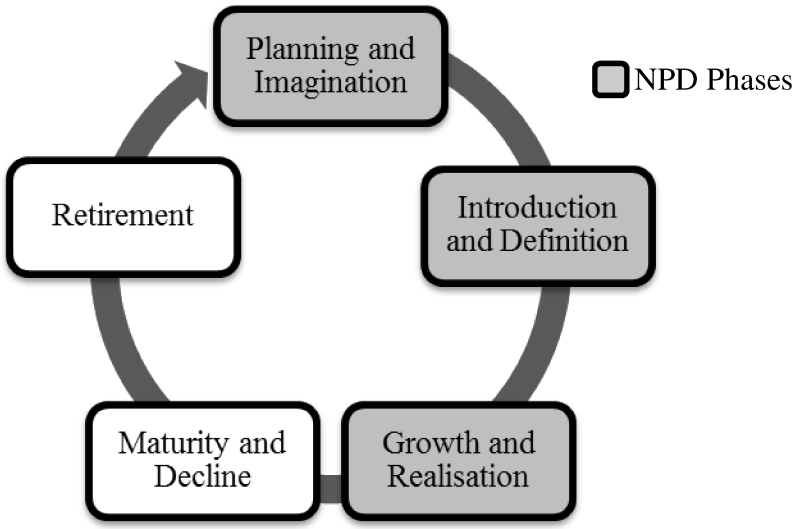


Figure 18. Product life cycle phases

PLC phases are often portrayed as linear processes, from the first generated idea, to the removal of the product from the market. However, firms are, now more than ever, recycling and improving their products and services, which brings them back, as an upgraded generation or into a different form, in the PLC process loop (Kleineidam, Lambert, Blansjaar, Kok, & Van Heijningen, 2000).

4.1.2 Technology: Social media (SM) tools

As the technology dimension designates the technological tools employed to support customer engagement, this study focuses on the use of SM tools as the technology to support these activities.

Since the emergence of the Internet, a few decades ago, technological innovations to support business activities have been plentiful. One concept that has emerged from these technological advances supported by the Internet is SM. Its widespread adoption has enabled not only firm-to-customer interaction, but also customer-to-firm and customer-to-customer interactions. Companies can now benefit from co-creating additional value with them (Filieri, 2013), and from acquiring useful information from them. Furthermore, Internet technologies, such as SM, that allow for high degrees of user interactions have been recognized to be beneficial, if not essential to support innovation processes (Adamides & Karacapilidis, 2006). Kaplan and Haenlein (2010) have defined SM as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allows the creation and exchange of user-generated content." They further emphasize that social media "refers to the online platforms, which individuals and communities can use to share, discuss, co-create, and modify user generated content.” In the conceptual framework, technology refers to the SM tools employed by an SME to support customer engagement. This research has identified 11 SM categories (Kaplan & Haenlein, 2010; Wyrwoll, 2014), each of which can be differentiated based on specific features, and level of interactivity. Social media categories are not a simple checklist for businesses to be active on. Specific categories should be selected according to firms’ collaboration objectives, to support open innovation, co-creation, crowdsourcing, or viral marketing initiatives during a specific PLC phase (Roch & Mosconi, 2016). The SM categories are presented in Table 13.

Tools to support innovation processes need to provide a high degree of interactivity, connectivity and sharing (Carbone, Contreras, Hernández, & Gomez-Perez, 2012). This research advances that SM, while responding to these requirements, are viable tools to support not only NPD processes, but collaboration to create value along the entire PLC.

Table 13

Social media categories

Categories	Description and characteristics	Examples	References
Blog	Entries are usually produced by a single author, and are displayed in reverse chronological order, presenting the most recent entry at the top of the page.	Business Insider	Kaplan & Haenlein, 2010; Wyrwoll, 2014
Forum	An online discussion site where users can hold conversations in form of posted messages.	DigitalPoint	Wyrwoll, 2014
Location sharing and annotation	This platform applies location-based services that enable groups of users to share their current location and annotations.	Foursquare	Wyrwoll, 2014
Media sharing/ Content community	Registered users can upload their content and share it with specific users or provide it to the public.	YouTube	Kaplan & Haenlein, 2010; Wyrwoll, 2014
Microblog	Allow users to broadcast short, real-time messages. It differs from blogs, because content units are limited in length.	Twitter	Wyrwoll, 2014
Question and answer	Users can pose questions and everyone can answer them. Answers can often be rated by others.	Ask	Wyrwoll, 2014
Rating and review	Allow users to rate and comment on products and services, by a single click, while reviews are written comments.	Ciao, TripAdvisor	Wyrwoll, 2014
Social network	Social network sites allow individuals to create a profile and connect with a list of other users.	Facebook	Kaplan & Haenlein, 2010; Wyrwoll, 2014
Collaborative project	Enable the joint and simultaneous creation of content by many users.	Wikipedia	Kaplan & Haenlein, 2010
Virtual game world	This three-dimensional environment allows users appear in the form of personalized avatars and interact in a game context, in order to achieve a specific goal.	World of Warcraft	Kaplan & Haenlein, 2010
Virtual social world	Allow inhabitants to choose their behavior more freely and live a virtual life similar to their real life in a 3D environment.	SecondLife	Kaplan & Haenlein, 2010

4.2 Firm motivators and impediments of customer engagement

Firms differ in their interest and ability to engage with customers. Hoyer et al. (2010) highlight two sets of reasons to explain this discrepancy in the co-creation context, which are also applicable to the broader customer engagement context. First, organizations may have a lower propensity to engage and reach customers due to organizational impediments. Second, certain firms may have access to better tools, or already have processes in place to facilitate and stimulate customer engagement. To address the disparity, this framework distinguishes the two reasons as firm motivators and firm impediments. Firm motivators is an antecedent to the degree of customer engagement which aims at explaining the facilitating factors and reasons why firms do implement customer engagement initiatives. Firm impediments, on the other hand, serves as an antecedent to the degree of customer engagement, which aims at explaining why some firms lack interest or the ability to implement these initiatives.

4.3 Outcomes of customer engagement

Outcomes of customer engagement refers to both positive (benefits) and negative outcomes that can potentially emerge from customer engagement initiatives. This research focuses on firm-related outcomes. However, there are also customer-related benefits and disadvantages of partaking in business-driven initiatives.

5. LITERATURE REVIEW

5.1 Customer engagement initiatives

Despite calls to support collaboration throughout the PLC, a recent systematic literature review pointed out that the academic trend is to use SM tools to mainly support NPD and innovation activities, during the initial phases of the PLC (Roch and Mosconi, 2016). The following section describes how SM has been used to support customer engagement initiatives, not only in the NPD phases, but

throughout the PLC. The same systematic literature review highlighted three staple concepts that underpin the research topic. First, open innovation has been defined as a shift from the traditional 'closed' innovation model towards the 'open' innovation paradigm (Chesbrough, 2003). It has enabled a flow of knowledge and competences, both inside and outside the organization, to develop products and services better suited to meet customer requirements (Filieri, 2013).

Second, rooted in the pioneering work on open innovation is the concept of co-creation (Durugbo & Pawar, 2014). Co-creation has been extensively studied in innovation management, and marketing literature, and many domains specific definitions have been proposed to define the concept. However, a more generic definition proposed by Ind *et al.* (2013, p. 9) describes co-creation as 'an active, creative, and social process based on collaboration between organizations and participants that generates benefits for all and creates value for stakeholders.' Co-creation therefore implies that stakeholders are actively involved in the process (Bogers, Afuah, & Bastian, 2010; Jenkins, 2006), that there is collaboration (knowledge flow) between both the participants and the organizing firm (Bogers & West, 2012), and participants need to co-create value, not just for themselves, but for others as well (Witell, Kristensson, Gustafsson, & Löfgren, 2011).

Third, crowdsourcing has been defined as the ability to outsource functions originally performed internally by the firm to a generally large pool of individuals answering an 'open call' (Howe, 2008). Crowdsourcing is believed by many authors to be a relevant way to create value by sourcing expertise and labor for low compensation (Chandler & Kapelner, 2013; Scheitzer *et al.*, 2012). Howe (2006) has identified clear characteristics of crowdsourcing: a clearly defined 'crowd' of users, a clear goal, clear coating or compensation, online allocated processes, and public tenders for variable content. As opposed opening innovation and co-creation, where the two encompass all inflows and outflows of innovation in any way, crowdsourcing rather focuses on inflows from efforts of single individuals or small groups, tapping

in their collective intelligence to answer an ‘open call’ (Agafanovas & Alonderiene, 2013).

Other concepts related to the use of SM to support customer engagement have also been identified in the literature. Viral marketing defines the phenomenon by which individuals share, spread, and promote marketing messages or information originally generated by the firm (Lans, Ralf, Eliashberg, & Wierenga, 2010). Community derived support offers one-to-many support, where a member of an online community can provide information as support to solving a problem or a request from another member, without necessarily having an organization intervene (Nguyen, Thompson, & Hoile, 2008). Users collaborating with organizations through viral marketing, community derived support, or any other customer engagement initiative are, in many cases, unconscious that their actions, such as sharing a marketing message on Facebook, or solving a customer’s problem on an online forum. They are indeed engaged and collaborating with the benefiting organization to create additional value.

Many collaboration initiatives take the form of online platforms of their own, integrating different SM tools to enable enriched customer engagement and support discussion amongst the platform’s users. This is particularly true for large, multinational corporations who benefit from the resources and the customer base to develop their own customer engagement platform. In other cases, enterprises use existing platforms, mainly SM platforms, which are accessible at a relatively low cost and provide a pre-existing network of users to develop their initiatives. Social media to support co-creation activities is an issue that has been identified to deserve further research to help organizations improve their innovation capabilities (Martini, Massa, & Testa, 2012), new product development (Chirumalla, 2013), and marketing activities (Kaplan & Haenlein, 2012) in the later phases of the PLC. Examples of SM-based customer engagement platforms supporting activities in each PLC phases are presented in Table 14.

Table 14

Examples of social media-based customer engagement initiatives to support PLC phases

Product life cycle phases	Initiative examples	Social media tools	Related customer engagement concepts	Description
Planning and imagination	Fiat Mio	Rating & review, blog, microblog, social network	Crowdsourcing	In 2009, Fiat provided a platform for users to create the world's first crowd sourced car. Users of the platform generated more than 11,000 ideas, and could engage in discussions with other users.
	Coca-Cola: Coke virtual thirst (Second Life)	Virtual social world, media sharing	Open innovation	Coca-Cola Company launched, in 2007, a contest in Second Life where users had to generate ideas and virtually design the next generation of Coke dispensing machines.
Introduction and definition	CrowdSPRING	Rating & review, blog, media sharing	Crowdsourcing	CrowdSPRING uses the crowd to design, amongst others, logos, graphics, packaging, and product names for participating firms.
	Starwood Hotels: Aloft (Second Life)	Virtual social world, blog	Co-creation	Starwood Hotels used the virtual social world Second Life to build a virtual prototype of their Aloft hotel. It was discussed, evaluated, modified, and further developed in Second Life prior to actually being built.
Growth and realisation	Dollar Shave Club pre-launch video	Media sharing	Viral marketing (Lans et al., 2010)	The Dollar Shave Club developed a pre-launch video, which was posted on YouTube and became viral. Their marketing strategy generated increased attention and sales at the launch of their e-commerce website, thanks to the network effect enabled by social media.
Maturity and decline	Apple Support Communities	Forum	Community derived support (Nguyen *et al.*, 2008)	Apple developed a forum where the community of users interact to offer customer support, answer product or service-related questions. This platform allows customer requests and problems to be solved without the need for and Apple representative to intervene.
Retirement	Heineken: Ideas Brewery	Rating & review, media sharing, microblog	Crowdsourcing	Heineken launched, in 2012, an online innovation challenge with the intent of finding a solution to improve the lifecycle of beer packaging, while ensuring its re-use and recycling.

5.2 The small and medium-sized enterprise (SME) context

The size of a business can be defined by different criteria, such as the number of employees, or financial assets. A widely used approach to determining a business's size is its number of employees, since the information is usually accessible and simple to collect. Therefore, based on the OECD (2005) definition, SMEs are defined as a business establishment with approximately 1 to 249 paid employees.

SMEs, in comparison to larger firms, face significant challenges, such as fewer resources, markets that are often more competitive, and an important size disadvantage for both their business and their customer-base. In order to overcome these disadvantages, Petersen *et al.* (2002) have suggested that open innovation, supported by Web-based technologies, could be very beneficial for SMEs. Social media therefore become ever so relevant in the SME context, as they can reduce the time and cost involved in conducting market research, idea generation, and idea screening efforts (Roberts & Candi, 2014). However, most of the academic literature on this research topic focuses primarily on large, multinational corporations (Roch & Mosconi, 2016; Van de Vrande, De Jong, Vanhaverbeke, & De Rochemont, 2009). Other factors make SMEs a relevant context for customer engagement, such as their high degree of customer orientation (Rogers, 2004), their growing importance and contribution to the global economy (Chesbrough, 2010), and their ability to quickly identify innovation opportunities (Hutter *et al.*, 2013). Additional work on collaborative innovation in the SME context is therefore needed (Colombo *et al.*, 2012).

6. METHODOLOGY

To properly explain and understand how SM is used to support customer engagement in SMEs, primary data has been collected and analyzed. The firms in the sample consisted of 11 SMEs, six of which were Canadian, and five Austrian, and

were selected with the explicit intention of providing sufficient insight to efficiently describe the phenomenon under study. This sample allowed us to assess the potential factors related to the main elements of the conceptual framework, and generate a holistic view of the use of SM to engage customers by SMEs. SMEs strongly impact both of these countries' economies as more than 99 percent or their businesses fall into this category (Government of Canada, 2012; Hölzl, 2010). Furthermore, the use of multiple cases has been advanced to offer evidence often considered more compelling (Herriott & Firestone, 1983; Yin, 2003). Based on theoretical sampling principles (Bryman & Bell, 2007), one factor judged to be very important when studying this phenomenon is the category of products offered by the firms. Based on the definition of products proposed by Saaskvuori and Immonen (2008), there are three categories of products: tangible products, services, and intangible products. In the sample, at least one Canadian and one Austrian SME was selected from each of these categories. Other factors were the size of the organization, its location, and the role of the respondent within the organization. The eleven firms operate in a variety of industries, ages hovering between one and 45 years old, fewer than 80 employees, and a product offering ranging from one to approximately 1000 (Table 15).

Table 15

Description of participating SMEs

Country	Firm	Product category	Industry	Age	Number of employees	Respondent role/title	Number of products offered
Canada	TP1	Tangible products	Retail (jewelry)	45 years	4	Director	~ 1000
	TP2	Tangible products	Construction (distributor)	17 years	12	Store manager, Marketing project manager	~ 300
	IP1	Intangible products	Business intelligence applications (IT)	3 years	11	Business development manager	3
	IP2	Intangible products	Communications management platform (sports)	1 year	6	Chief business development officer	1
	S1	Services	Financial services	1,5 years	3	Director	2
	S2	Services	Marketing and sales consultation	1,5 years	11	Marketing advisor	18
Austria	TP3	Tangible products	Cosmetic production	10 years	75	Head of marketing	~ 200
	IP3	Intangible products	Information technology (mobile and app focus)	6 years	8	CEO, and Project manager	1
	S3	Services	Entertainment (club and concerts)	10 years	25	Responsible for communications and event organization	2
	S4	Services	Strategy and positioning consultation	20 years	2	Chief executive officer	5
	S5	Services	Tourism	45 years	5-80 (seasonal)	Owner	3

The data collection consisted of semi-structured interviews of approximately 25-35 minutes each. Interviews with the Canadian SMEs were performed during the month of July 2015, while Austrian SMEs were interviewed in February 2016. The respondents were directors, managers, or owners, and therefore had sufficient comprehension of the firm's use of SM, and customer engagement processes. The interview grid[7] consisted of four sections, and 24 open-ended questions, which were developed based on the findings from the systematic literature review. Additional questions and discussion have also been added to generate deeper insights, as the nature of semi-structured interviews allows it.

This research is founded on a systematic literature review on the use of SM tools along the different PLC phases (Roch & Mosconi, 2016). The systematic literature review findings provided the foundation to collect, analyze, and interpret the primary data. The data collected from the interviews was manually processed, systematically managed, and analyzed from a qualitative point of view, with the intent of describing and understanding how and why SMEs use SM to engage with customers, throughout their products' life cycles. Qualitative methods are valuable to obtain a novel and unique understanding of existing phenomena (Dubois & Gadde, 2002; Yin, 2002).

The data was analyzed using Yin's (2009) strategy of relying on the research questions that led to the case studies, as well as on the conceptual framework elements. In addition, due to the nature of this explanatory research, where the goal is to understand the phenomenon under study and develop ideas for further research, explanation building was used as the main analytical technique. Data collected from all 11 interviews has been analyzed based on both, the research questions and the conceptual framework, in order to explain the different elements of the framework, and identify potential factors associated with these elements. Theory building using

[7] The interview grid (English version) is presented in Appendix A, and the consent form (English version) is presented in Appendix C.

cases has been identified as a developing 'most interesting' research (Bartunek, Rynes, & Ireland, 2006) and is a great method to bridge rich qualitative evidence to mainstream deductive research (Eisenhardt & Graebner, 2007).

7. RESULTS

The analyzed interviews offered important insights into understanding the different elements of customer engagement supported by SM, and into the identification of potentially important factors related to these elements. The interview results have been categorized and added to the corresponding factors in the conceptual framework. These insights are summarized in Figure 19 and quotes from the interviewed firms are provided in Table 18.

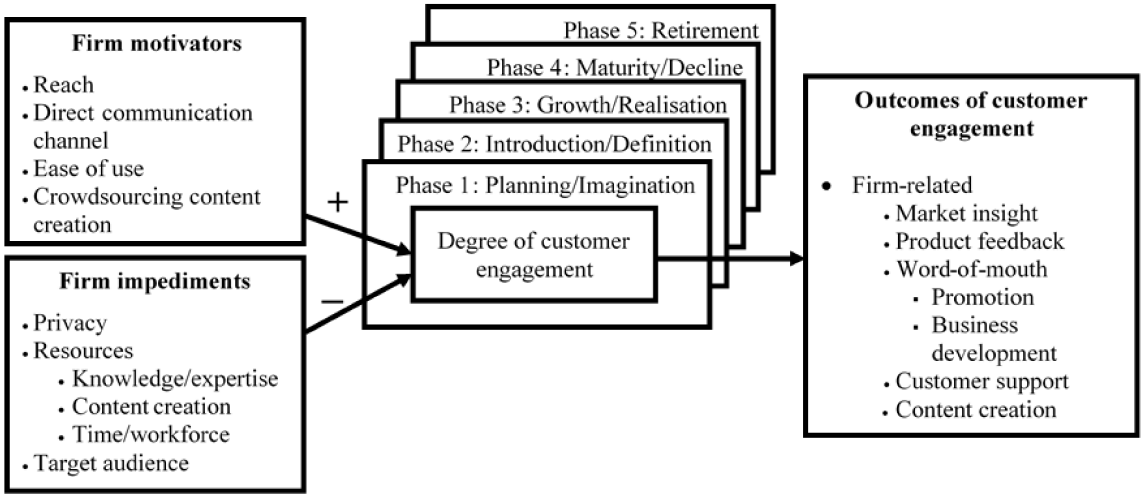


Figure 19. Conceptual framework results of customer engagement supported by SM in SMEs

SMEs have particular reasons that motivate or inhibit their use of technology and SM in general. The same is true when using SM for customer engagement purposes. The data collected allows us to answer the research question of 'Why do some SMEs use SM to actively engage with customers, while others do not?' Several motivators and impediments, as antecedents, have been identified by the interviewed

firms and could potentially explain why some firms use SM to support customer engagement while others do not.

7.1 Firm motivators

This research argues that SM are great tools to support customer engagement initiatives of SMEs. The results from the data analysis highlighted four main factors which motivate firms to use SM to support customer engagement initiatives.

a) Undeniably, one of SM's greatest attribute is its *reach*, its ability to connect firms with huge amounts of users and potential customers from a variety of demographic background and geographic location.
b) In addition to the insight firms can collect directly from users of SM initiatives, these platforms also allow them to have a *direct communication channel* where they can interact, exchange, and collaborate with customers in real-time.
c) The familiarity of many SM platforms makes them *easy to use*, and allows firms to perform tasks efficiently, such as identifying specific segments.
d) A significant impediment of using SM in general is certainly the lack of available resources, and the inability to create adequate content to publish. However, the possibility of *crowdsourcing the content creation* to SM users and utilize the user-generated content has been identified as a great reason for SMEs to engage with customers via SM platforms.

7.2 Firm impediments

Every participating firm recognizes the potential benefits of engaging and collaborating with customers. However, using SM to support these activities is not as unanimous. While some firms highlighted potential motivators to use SM to support customer engagement, others are reticent in doing so.

a) *Privacy*, or lack thereof, is a main concern for SMEs when engaging with customers on SM. Some firms are under non-disclosure agreements, while others would rather engage them with traditional methods, to avoid their competitors accessing the content created by or with the users.

b) A *lack of resources* typically characterizes SMEs' general disadvantage, and is reflected in their reserves regarding the use of SM. It has been highlighted that they lack knowledge and expertise, time and workforce, and ability to generate adequate content to properly implement customer engagement initiatives using SM.

c) The availability and presence of the firms' *target audiences* on SM is also crucial when implementing these initiatives, and can be an important constraint.

7.3 Degree of customer engagement

Data collected of the degree of customer engagement from the interviewed SMEs helps explain how, and why these companies use SM to engage customers during the different PLC phases. Firms with a high scope use SM to engage customers in almost all PLC phases, while firms with low or no scope do so in one or less phase. Results show that although nine of the 11 SMEs actively use SM tools to support different business activities, only four of these firms actually have the objective of engaging users through these initiatives. Table 16 presents in which PLC phase the interviewed firms use SM to support customer engagement initiatives.

Table 16

Customer engagement supported by SM during the PLC phases

Firms	Planning Imagination	Introduction Definition	Growth Realisation	Maturity Decline	Retirement
TP1					
TP2					
TP3					
IP1					
IP2					
IP3					
S1					
S2					
S3					
S4					
S5					
Total	**2**	**0**	**3**	**2**	**0**

These results demonstrate a lack of customer engagement using SM by most firms, and during most PLC phases. None of the interviewed firms use SM to engage with customers during the introduction and definition, and retirement phases. The introduction and definition phase is often more technical, and could potentially explain why firms perform these tasks internally, or using closed methods of collaboration and engagement. Other firm impediments could also explain why SMEs scarcely use SM to support customer engagement initiatives. On the other hand, some firms do use SM to collaborate, gather market insight during the initial PLC phase, attempt to tap into viral word-of-mouth promotion initiatives during the growth and realisation phase, and use customer-created content, provide customer support, and gather product feedback during the maturity and decline phase. However, the scope only explains one angle of the degree of customer engagement. The technology also offers interesting insights as to which SM tools are being used to support the customer engagement initiatives of the interviewed firms, which are presented in Table 17.

Table 17

SM tools used to support collaboration initiatives

Firms	Social networks	Rating & review	Microblogs	Media sharing
TP1				
TP2				
TP3				
IP1				
IP2				
IP3				
S1				
S2				
S3				
S4				
S5				
Total	**4**	**4**	**1**	**4**

All of the SM tools used to support the collaboration initiatives of the interviewed firms come from mainstream SM platforms such as Facebook, Twitter, YouTube, and Instagram. These results are not surprising, as these platforms can potentially compensate for certain SME disadvantages by providing them with a low-cost platform and access to a large pool of potential users and customers.

7.4 Outcomes of customer engagement

Customer engagement initiatives performed in different PLC phases will most certainly yield different outcomes. The 11 interviewed firms have identified six potential firm-related outcomes and benefits from their experiences with SM to support customer engagement.

a) Participants, through these initiatives, can offer *market insight* to help the organizing firm better orient themselves when developing new products and implementing marketing campaigns.

b) Throughout the PLC, firms engage with customers to get *feedback* on concept and actual products directly from users.

c) Social media's ability to enhance word-of-mouth has created great opportunities for SMEs. They tap into this concept for *promotion* purposes, along with *business development* and customer acquisition.

d) Engaged users on SM can also provide *customer support* on behalf of the firms. Customers interact amongst one another to solve each other's problems, saving SMEs time and resources.

e) Firms implementing customer engagement initiatives can benefit from *content created by the users*, which is referred to as user-generated content. This is a significant benefit for SMEs, as content creation can be very time consuming and expensive. Through these initiatives, firms are therefore able to leverage their customers to create content on their behalf, reuse that content, and increase their reach.

Table 18

Results synthesis with citations from the interviewed firms

Elements	**Factors**	**Citations**
Firm motivators	Reach	IP3: *It's definitely a great way to present ourselves on an international level that you could not do without social media. It's very important for us to have that kind of presence*.
		TP3: *Our target is quite old, so it's between 50 and 80 for the normal consumer, and we're trying to get the brand a bit younger. So we use channels like Facebook, Instagram.*
	Direct communication channel	S1: *We use it to interact directly with our customers, to contact specific customers.*
	Ease of use	IP3: *Rather we use more this social media channel (Facebook), because they can be handled with much less effort.*
		S4: *This is the best advantage of social media platforms, because you can catch your potential customers, knowing and finding their profiles in a much better way than you could do it before.*
	Crowdsourcing content creation	S3: *During the event … everyone is taking pictures, if they like something, they're making a video. Sometimes we'll ask them to share those with us.*
Firm impediments	Privacy	IP3: *I mean, in this whole idea generation phase, we are usually under non-disclosure agreement, so we don't post about those things.*
		TP1: *I am always hesitant. We work hard to find exclusive lines and we are scared that our competitors consult our page and see those brands.*
	Knowledge/expertise	TP2: *We are too small at the moment. The people in charge don't have the competences and the time to create a blog*.
	Content creation	S3: *We don't post (on YouTube), because if you film it with a phone camera, it doesn't look professional, but we post videos from other bands on our Facebook page.*
	Time/workforce	S5: *We need to expand this (Facebook) first. Actually I need to find an employee that does it for me, and obviously I don't have time for it.*
		TP1: *We are really open, there is only a lack of time… Except for Facebook, we are on no other social media, and it's really by lack of time, and not by lack of interest.*
	Target audience	S2: *It so happens that we have a very specific customer segment. They are not really on social media, which is why we don't have real social media objectives.*

Table 18 (continued)

Results synthesis with citations from the interviewed firms

Elements	**Factors**	**Citations**
Firm–related outcomes of customer engagement	Market insight	IP3: *I think it's more that we post something that is of news and see how people react, if that's a topic that gets attention or on the other side try to use the information that is provided to make better decisions.*
		S3: *In our case, we post on Facebook like "which band would you like to see in the next month." This helps us sense in which direction that the people go, and which music they want to hear.*
	Product feedback	TP3: *We have so many launches and new products that I'm very happy that we can get some feedback and insights from the clients. So like what they wish to get.*
		S3: *We use it for evaluation basis as well. If we start something new, we sometimes ask our community whether they liked it or not, or what would they change. Feedback, that's it actually.*
	Word-of-mouth: promotion	TP3: *We have a pre-launch phase. We start announcing the product before it gets launched, and we started having a pre-launch on the e-commerce shop. So people can buy the product early and start talking about it on Facebook or wherever, and then the official launch.*
	Word-of-mouth: business development	IP2: *I use them mainly to generate interest to get new clients.*
		S4: *We use it to screen companies and markets who are in need of what we do.*
	Customer support	IP2: *Technical support will mostly be done via Twitter. Listen and answer comments, and improve.*
	Content creation	S3: *Sometimes we ask them whether they can post a great pic on Instagram or on our Facebook page or send it to us.*

8. DISCUSSION AND IMPLICATIONS

The framework developed with the intent of building theory on customer engagement provided answers to the previously highlighted questions regarding the phenomenon under study and which motivated the development of the conceptual framework.

Why do some SMEs use SM to support customer engagement, while others do not? Answers on firm motivators and impediments have allowed for better understanding of the favorable and adverse factors motivating firms to develop or not customer engagement initiatives. The results suggest that most motivating factors refer to the nature of social media itself, such as reach and ease of use, while impediments referred to both social media and organizational barriers. Social media, for the interviewed SMEs, therefore seem to be the ideal technology to support their customer engagement initiatives.

Why do firms use different SM tools to support their customer engagement initiatives? Although the interviewed firms only used four SM tools to engage customers, each SM tool has specific characteristics and offers different levels of customer integration, therefore allowing firms to engage customers for different purposes during different phases of the PLC.

Why does the scope of customer engagement initiatives vary between SMEs? Once again, the interviewed SMEs did not engage customers in activities during every PLC phase. However, customer engagement initiatives differ in each of the PLC phases, as firms' activities are very specific to each of the phases.

What are the potential outcomes of conducting customer engagement initiatives for the organizing firms? Although these outcomes have been recognized in the results sections, clear benefits for SMEs need not be highlighted. The ability

for customers to leverage SM's word-of-mouth highly impacts SMEs promotion and business development strategies as it allows them to reach customers and potential customers in a way they would never have the resources to. Furthermore, the lack of resources in SMEs doesn't only limit their reach, but also their ability to produce large amounts of quality content. By engaging customers via SM, they are able to tap into their customers' creativeness and leverage their user-generated content.

The academic literature on customer engagement supported by SM highlights that firms can leverage these initiatives to generate disruptive innovation, and reach thousands or millions of users. Conversely, customer engagement initiatives actually implemented by the interviewed SMEs had mild expectations, and served simple purposes. Guidelines should be developed to better support managers and firms trying to use SM to engage customers in their everyday strategies to create additional value. SMEs are not the only ones facing the challenge of successfully implementing social media initiatives and the proposed framework is the first step towards better understanding this process and properly support organizations in engaging customers.

Although the outcomes of SM customer engagement highlighted from the interviews consist solely of benefits for firms organizing the customer engagement initiatives, there are certain risks and negative outcomes associated with customer engagement. Future research should focus on identifying what those risks and potential negative outcomes are for SMEs engaging in customer engagement initiatives. Furthermore, the sampled SMEs did, in nine of 11 cases, actively use SM tools. Yet, only four of them actually used SM to engage with customers to create additional value. Different samples should be used to gather additional factors and improve the proposed framework. Samples with firms who are more proactive in engaging customers throughout their PLC activities should also be selected to gather deeper understanding of this phenomenon. More empirical and analytical research should also be conducted to measure the weight and the impact of firm impediments

in the non-implementation of customer engagement initiatives, and the same with firm motivators resulting in implementation of such initiatives.

In summary, the area of customer engagement supported by SM is still at the exploratory stage, and many aspects require further investigation. In this study, a conceptual framework is proposed, which focused on the degree of customer engagement supported by SM. The firm motivators, firm impediments, and firm-related outcomes were examined. This conceptual framework serves as building ground for theory on customer engagement, and we hope that this proposition, along with the proposed suggestions will stimulate researchers to further explore this phenomenon.

CONCLUSION

Despite being founded on a systematic approach, and including both academic literature analysis and managerial results from interviewed cases, there are some limitations to this research project. Although it focuses on the use of social media tools throughout the PLC, there are limited academic and managerial results on the retirement phase. Furthermore, even though the systematic literature review mainly focused on innovation activities and the NPD process, the interviewed firms did not actively use social media tools to support innovation activities. The interviewed sample may not properly reflect how SMEs actually use social media tools to support their different business activities. The interviewed firms were relatively passive in their use of social media to engage customers, and more proactive firms would yield different and deeper results. Another important issue worth mentioning is the fact that a full content analysis of the systematic literature review articles has not been performed in order to identify the performance and efficiency of each social media tool in a specific phase of the product life cycle.

This research project serves as foundation for further research on social media and customer engagement, and several potential research avenues can be taken to gather a deeper understanding of this phenomenon. First, further analysis can be conducted of the existing literature to not only understand which social media tool can be used in the different PLC phases, but also understand how efficient the tools can be and what business performance can come out of such initiatives. Second, different and more proactive samples should be interviewed to get deeper understanding of SMEs use of social media tools to engage customers, and therefore complete and improve the proposed framework. Finally, once researchers have gathered a sufficient understanding of this phenomenon, guidelines and recommendations should be developed to better support SMEs and other

organizations in successfully implementing social media and customer engagement initiatives.

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APPENDIX A
INTERVIEW GRID (ENGLISH)

Purpose of this project:

The purpose of this research project is to identify which social media tools are used during the different product and service life cycle phases of small and medium sized enterprises. By doing so, this project aims at offering recommendations to SMEs as to how social media tools should be used to support their activities along the product life cycle.

Unit of analysis:

The unit of analysis is the management process of products' and services' life cycles of the organization.

Potential role of the respondent:

Director of the SME, products or services manager, or any similar leadership role.

Length of the interview:

The length of the interview is approximately 25-35 minutes.

Questions on the organization

1. How would you label the industry in which the organization operates?
2. How old is the organization (in years)?
3. How many employees are part of the organization?
4. What role/title do you serve in the organization?
5. Does the organization have a department responsible for product development or innovation?

Questions on products and services

6. What category of products does the organization offer (tangible products, intangible products, services)?
7. How many products/services does the organization offer?
8. Do you have specific procedures/processes/guidelines for the development of new products/services?
9. Could you describe, giving an example, how your products/services are created?
10. What are your primary sources of information/inspiration to develop new products/services?
11. How do you proceed when changing or upgrading a current product/service?

Questions about the market

12. Can you identify and briefly describe your main competitors?
13. What differentiates you from your competitors?

Questions on collaboration and the integration of external sources

14. In your opinion, is it beneficial to integrate/collaborate with customers for different purposes/processes in your organization?
    a. If yes, why (marketing, customers as innovators, saving time/money)?

   b. If no, why (organizational culture does not allow it, difficult and complicated, lack of "know-how", requires too many resources or work)?

15. Do you integrate external sources to support one or many business activities?
   a. If yes, for which activities and why?
   b. If no, why?
16. How do you integrate external sources (customers, suppliers, partners) during the imagination (generation of new ideas) and the development of new products/services?
17. How do you integrate external sources (customers, suppliers, partners) during the launch (introduction to market, promotion) of new products/services?
18. How do you integrate external sources (customers, suppliers, partners) during the active life of your products/services (promotion, word-of-mouth, customer service support, product feedback)?
19. How do you integrate external sources (customers, suppliers, partners) when comes the time to recycle or remove a product/service from the market?

Questions on social media

20. How do you perceive the adoption of new technologies in your organization?
21. Does your organization use social media?
   a. If yes, which one and how (branding, support specific products/services)?
   b. If no, why not, and are you expecting/planning to use social media within the next year?
22. More specifically, do you use social media to support the following tasks?
   a. The generation of new ideas for products/services (which social media)?
   b. The development and testing of new products/concepts (which social media)?
   c. The launch of new products/services (which social media)?
   d. For marketing, promotion or customer service support during the active life of your products/services (which social media)?
   e. The recycling or removal of products/services (which social media)?
23. Does your organization use social media for other tasks not previously mentioned (which tasks, which social media)?
24. If we were to develop a guide with recommendations on the use of social media for SMEs, would you find it useful?
   a. What would you like to see in this guide?

APPENDIX B
INTERVIEW GRID (FRENCH)

Objectif du travail :

L'objectif du projet de recherche est d'identifier quelles catégories de médias sociaux sont utilisées dans les différentes phases du cycle de vie des produits et services au sein des petites et moyennes entreprises. Ce projet vise, par le fait même, à offrir aux PME des recommandations quant à l'utilisation des médias sociaux dans le processus du cycle de vie de leurs produits et services.

L'unité d'analyse :

L'unité d'analyse est le processus de gestion du cycle de vie des produits et services de l'entreprise.

Rôle potentiel du répondant dans l'entreprise :

Dirigeant de PME, gestionnaire des produits ou services, ou tout autre rôle de gestion similaire.

Durée de l'entrevue :

La durée de l'entrevue est d'environ 25 à 35 minutes.

Questions sur l'entreprise

1. Dans quel secteur d'activité œuvre l'entreprise?
2. Nombre d'années d'existence de l'entreprise?
3. Nombre d'employés dans l'entreprise?
4. Quel poste occupez-vous au sein de l'entreprise?
5. Est-ce que votre entreprise a un département de développement de produits ou d'innovation?

Produits et Services

6. Quelle catégorie de produits offre votre entreprise (biens tangibles, biens intangibles, services)?
7. Combien de produits/services offre votre entreprise?
8. Avez-vous des procédures / processus / guide pour le développement de nouveaux produits/services?
9. Pourriez-vous décrire, à l'aide d'un exemple, comment vos produits/services sont créés?
10. Quelles sont vos principales sources d'information/inspiration pour le développement de nouveaux produits/services?
11. Comment procédez-vous pour changer ou améliorer vos produits/services actuels?

Marché

12. Pouvez-vous identifier et décrire brièvement vos principaux compétiteurs?
13. Qu'est-ce qui vous différencie de vos compétiteurs?

Intégration des parties prenantes

14. À votre avis, est-il avantageux d'intégrer/collaborer avec des consommateurs pour diverses activités/processus de votre entreprise?
    a. Si oui, pourquoi (consommateurs sont plus innovateurs, sauver de l'argent et du temps, marketing)?

   b. Si non, pourquoi (culture organisationnelle défavorable, difficile et compliqué, manque de « savoir-faire », augmente la charge de travail, nécessite plus de ressources)?

15. Intégrez-vous des sources externes pour supporter la gestion du cycle de vie de vos produits/services?
   a. Si oui, pour quelles activités et pourquoi?
   b. Si non, pourquoi?
16. Comment intégrez-vous les sources externes à votre entreprise (consommateurs, fournisseurs, partenaires) lors de l'imagination (génération de nouvelles idées) et du développement de nouveaux produits/services?
17. Comment intégrez-vous les sources externes à votre entreprise (consommateurs, fournisseurs, partenaires) lors du lancement (mise en marché, production) de nouveaux produits/services?
18. Comment intégrez-vous les sources externes à votre entreprise (consommateurs, fournisseurs, partenaires) lors de la vie active du produit/service (promotion, bouche-à-oreille, service à la clientèle)?
19. Comment intégrez-vous les sources externes à votre entreprise (consommateurs, fournisseurs, partenaires) lorsque vient le temps de prendre la décision de recycler ou de retirer un produit/service du marché?

Médias sociaux

20. Comment percevez-vous l'adoption de nouvelles technologies dans votre entreprise ?
21. Est-ce que votre entreprise utilise les médias sociaux ?
   a. Si oui, lesquels et comment (marque, produit spécifique, tâches spécifiques) ?
   b. Si non, pourquoi et envisagez-vous utiliser les médias sociaux d'ici la prochaine année ?
22. Plus spécifiquement, utilisez-vous les médias sociaux afin d'accomplir les tâches suivantes ?
   a. La génération de nouvelles idées de produits/services (lesquels)?
   b. Le développement de nouveaux produits/concepts (lesquels)?
   c. Le lancement de nouveaux produits/services (lesquels)?
   d. Marketing, promotion, service à la clientèle lors de la vie active du produit (lesquels)?
   e. Pour le retrait/recyclage de produits/services (lesquels)?
23. Utilisez-vous les médias sociaux pour d'autres tâches que celles mentionnées précédemment ? Si oui, quels médias sociaux, et quelles tâches?
24. Que pensez-vous de l'utilité d'un guide avec des recommandations sur l'utilisation de médias sociaux pour les PME?
   a. Que voudriez-vous retrouver dans le guide?

APPENDIX C
CONSENT FORM (ENGLISH)

RESEARCH INFORMATION AND CONSENT FORM

You are invited to participate in a research project. This document describes the project's procedures. Feel free to ask questions about any words or paragraphs you do not understand. To take part in the project, you must sign the consent section at the end of this document; a signed and dated copy will be returned to you.

Project Title

Social Media to Support Collaboration in the Product and Service Life Cycles of SMEs

Principal Investigator

Jeremi Roch, master's student in Gestion du commerce at the Université de Sherbrooke. The supervising researcher for this master's project is Elaine Mosconi. For more information, you may contact her by phone at

Purpose of the Research Project

The objectives of this project are to identify which social media can be used in the different product life cycle phases of SMEs. By doing so, this project aims at offering recommendations to SMEs as to how social media can be used to support their product life cycle processes.

Study Procedures

Your participation to this project will require you to take part in an interview of approximately thirty minutes. The interview will take place at a location and time of your convenience. You will have to answer questions on the use of social media and the integration of customers in different product life cycle activities of your organization. The interview will be audio recorded.

Potential Benefits

By participating in this project, you will contribute to the advancement of knowledge in the field of social media in the SME context. Furthermore, your participation in this project will allow you to receive practical recommendations on the use of social media to support your product life cycle activities.

Potential Risks and Inconveniences

Your participation should not involve any significant inconveniences, other than giving some of your time. You may ask to take a break or to continue the interview at a more convenient time.

Voluntary Participation and Withdrawal from the Study

It is understood that your participation in this research project is completely voluntary and that you remain free, at any moment, to end your participation without having to justify your decision and without penalty.

If you withdraw from the study, do you ask that the audio or written documents pertaining to you be destroyed?

YES ⎵ NO ⎵

In this eventuality, the researcher will validate your preferences regarding data destruction.

Confidentiality, Sharing, Supervision, and Publications

While you take part in this research project, the study staff will collect and record information about you in a research file. Only the information needed for research purposes will be collected.

All the information collected about you during the study will remain confidential unless required by law. To protect your privacy, your information will be identified with a code number. The link between your identity and that code number will be kept securely by the study investigator.

The study investigator will use these data for research purposes in order to fulfill the scientific objectives of the study as described in this information and consent form.

These data could be published in scientific journals or shared with other persons during scientific meetings. No data thus published or shared will bare any information that could lead to your identification.

To make sure the data collected from your information is accurate, your research file could be inspected by a person or persons authorized by the Research Ethics Board – Lettres et sciences humaines of the Université de Sherbrooke or by representatives of public authorities. All of these people and groups are bound by confidentiality policies.

Results of the research and publications

You will be informed of the results of the research and the publications which will result from this, if necessary. We will preserve the anonymity of the study participants.

Further studies

The results from this study may be use for another research project. In this eventuality, do you authorize the research team to contact you to ask if you would be interested in taking part in this new research?

YES ⎵ NO ⎵

Control of the ethical aspects of the research project

The Research Ethics Board – Lettres et sciences humaines of the Université de Sherbrooke has approved this research project and is responsible for its follow-up. Furthermore, any modification to the study protocol or to this research information and consent form will be submitted to the REB's approval

You may discuss any ethical issues related to the conditions of your participation in this project with the person in charge of the project, or address your concerns to Mr Olivier Laverdière, Chair of the Research Ethics Board – Lettres et sciences humaines of the Université de Sherbrooke, by contacting the committee coordinator by phone at

Voluntary and Informed Consent

I, _____ (please print), have read and/or understand this consent form, of which I have received a copy. I understand the reason and the nature of my participation in this project. I received explanations about the study, and my questions were answered to my satisfaction.

I freely agree to participate in this research study.

Signature of the participant: _____

Signed in _____, on _____ 20__

Researcher Declaration of Responsibility

I,_____(please print), principal investigator, declare that my research team will be responsible for carrying out this project. We commit to respect the obligations stated in this document and to inform you of any element likely to modify the nature of your consent.

Signature of the principal investigator: _____

Declaration of the Person Responsible for Obtaining Consent

I,_____(please print), declare that I have explained the terms of this form to the study participant. I have answered the participant's questions on the subject, and have clearly indicated that he or she is free to withdraw at any time from participation in the above described project. I commit to ensure the respect of the study objectives and to respect confidentiality.

Signature: _____

Signed in _____, on _____ 20__

APPENDIX D
CONSENT FORM (FRENCH)

FORMULAIRE D'INFORMATION ET DE CONSENTEMENT

Vous êtes invité(e) à participer à un projet de recherche. Le présent document vous renseigne sur les modalités de ce projet de recherche. S'il y a des mots ou des paragraphes que vous ne comprenez pas, n'hésitez pas à poser des questions. Pour participer à ce projet de recherche, vous devrez signer le consentement à la fin de ce document et nous vous en remettrons une copie signée et datée.

Titre du projet

Médias sociaux pour supporter la collaboration dans le cycle de vie des produits et services des PME.

Personnes responsables du projet

La personne responsable de ce projet de recherche est Jérémi Roch. Ce projet de recherche est réalisé dans le cadre de la maîtrise en gestion du commerce électronique. La directrice du mémoire est Elaine Mosconi et elle peut être rejointe au

Objectifs du projet

L'objectif de ce projet est d'identifier quels médias sociaux peuvent être utilisés dans les différentes phases du cycle de vie des produits pour les PME. Ce projet vise, par le fait même, à offrir aux PME des recommandations quant à l'utilisation des médias sociaux dans le processus du cycle de vie de leurs produits et services.

Raison et nature de la participation

Votre participation à ce projet sera requise pour une entrevue d'environ trente minutes. Cette entrevue aura lieu à l'endroit qui vous convient, selon vos disponibilités. Vous aurez à répondre à des questions sur l'utilisation des médias sociaux et l'intégration de consommateurs dans les différentes phases du cycle de vie des produits et services de votre entreprise. Cette entrevue sera enregistrée sur bande audio.

Avantages pouvant découler de la participation

Votre participation à ce projet de recherche vous apportera l'avantage de recevoir des recommandations pratique quant à l'utilisation des médias sociaux dans le processus du cycle de vie de vos produits. À cela s'ajoute le fait qu'elle contribuera à l'avancement des connaissances entourant l'utilisation des médias sociaux dans le cycle de vie des produits des PME.

Inconvénients et risques pouvant découler de la participation

Votre participation à la recherche ne devrait pas comporter d'inconvénients significatifs, si ce n'est le fait de donner de votre temps. Vous pourrez demander de prendre une pause ou de poursuivre l'entrevue à un autre moment qui vous conviendra.

Il se pourrait, lors de l'entrevue, que le fait de parler de votre expérience vous amène à vivre une situation difficile. Dans ce cas, nous pourrons vous fournir le nom d'un professionnel qui pourra vous donner du support, si vous le souhaitez.

Droit de retrait sans préjudice de la participation

Il est entendu que votre participation à ce projet de recherche est tout à fait volontaire et que vous restez libre, à tout moment, de mettre fin à votre participation sans avoir à motiver votre décision ni à subir de préjudice de quelque nature que ce soit.

Advenant que vous vous retiriez de l'étude, demandez-vous que les documents audio ou écrits vous concernant soient détruits?

Oui ❒ Non ❒

Il vous sera toujours possible de revenir sur votre décision. Le cas échéant, le chercheur vous demandera explicitement si vous désirez la modifier.

Confidentialité, partage, surveillance et publications

Durant votre participation à ce projet de recherche, le chercheur responsable ainsi que son personnel recueilleront et consigneront dans un dossier de recherche les renseignements vous concernant. Seuls les renseignements nécessaires à la bonne conduite du projet de recherche seront recueillis. Ils peuvent comprendre les informations suivantes : nom, origine ethnique, photographies, enregistrements vidéo ou audio, habitudes de vie, résultats de tous les tests, examens et procédures que vous aurez à subir lors de ce projet, etc.

Tous les renseignements recueillis au cours du projet de recherche demeureront strictement confidentiels dans les limites prévues par la loi. Afin de préserver votre identité et la confidentialité de ces renseignements, vous ne serez identifié(e) que par un numéro de code. La clé du code reliant votre nom à votre dossier de recherche sera conservée par le chercheur responsable du projet de recherche.

Le chercheur principal de l'étude utilisera les données à des fins de recherche dans le but de répondre aux objectifs scientifiques du projet de recherche décrits dans ce formulaire d'information et de consentement.

Les données du projet de recherche pourront être publiées dans des revues scientifiques ou partagées avec d'autres personnes lors de discussions scientifiques. Aucune publication ou communication scientifique ne renfermera d'information permettant de vous identifier. Dans le cas contraire, votre permission vous sera demandée au préalable.

Les données recueillies seront conservées, sous clé, pour une période n'excédant pas 5 ans. Après cette période, les données seront détruites. Aucun renseignement permettant d'identifier les personnes qui ont participé à l'étude n'apparaîtra dans aucune documentation.

À des fins de surveillance et de contrôle, votre dossier de recherche pourrait être consulté par une personne mandatée par le Comité d'éthique de la recherche Lettres et sciences humaines, ou par des organismes gouvernementaux mandatés par la loi. Toutes ces personnes et ces organismes adhèrent à une politique de confidentialité.

Résultats de la recherche et publication

Vous serez informé des résultats de la recherche et des publications qui en découleront, le cas échéant. Nous préserverons l'anonymat des personnes ayant participé à l'étude.

Surveillance des aspects éthiques et identification du président du Comité d'éthique de la recherche Lettres et sciences humaines

Le Comité d'éthique de la recherche Lettres et sciences humaines a approuvé ce projet de recherche et en assure le suivi. De plus, il approuvera au préalable toute révision et toute modification apportée au formulaire d'information et de consentement, ainsi qu'au protocole de recherche.

Vous pouvez parler de tout problème éthique concernant les conditions dans lesquelles se déroule votre participation à ce projet avec la responsable du projet ou expliquer vos préoccupations à **M. Olivier Laverdière**, président du Comité d'éthique de la recherche Lettres et sciences humaines, en communiquant par

l'intermédiaire de son secrétariat au numéro suivant :

Consentement libre et éclairé

Je, _____ (*nom en caractères d'imprimerie)*, déclare avoir lu et/ou compris le présent formulaire et j'en ai reçu un exemplaire. Je comprends la nature et le motif de ma participation au projet. J'ai eu l'occasion de poser des questions auxquelles on a répondu, à ma satisfaction.
Par la présente, j'accepte librement de participer au projet.

Signature de la participante ou du participant : _____

Fait à _____ , le _____ 201_

Déclaration de responsabilité des chercheurs de l'étude

Je, _____ chercheur principal de l'étude, déclare que les chercheurs collaborateurs ainsi que mon équipe de recherche sommes responsables du déroulement du présent projet de recherche. Nous nous engageons à respecter les obligations énoncées dans ce document et également à vous informer de tout élément qui serait susceptible de modifier la nature de votre consentement.

Signature du chercheur principal de l'étude : _____

Déclaration du responsable de l'obtention du consentement

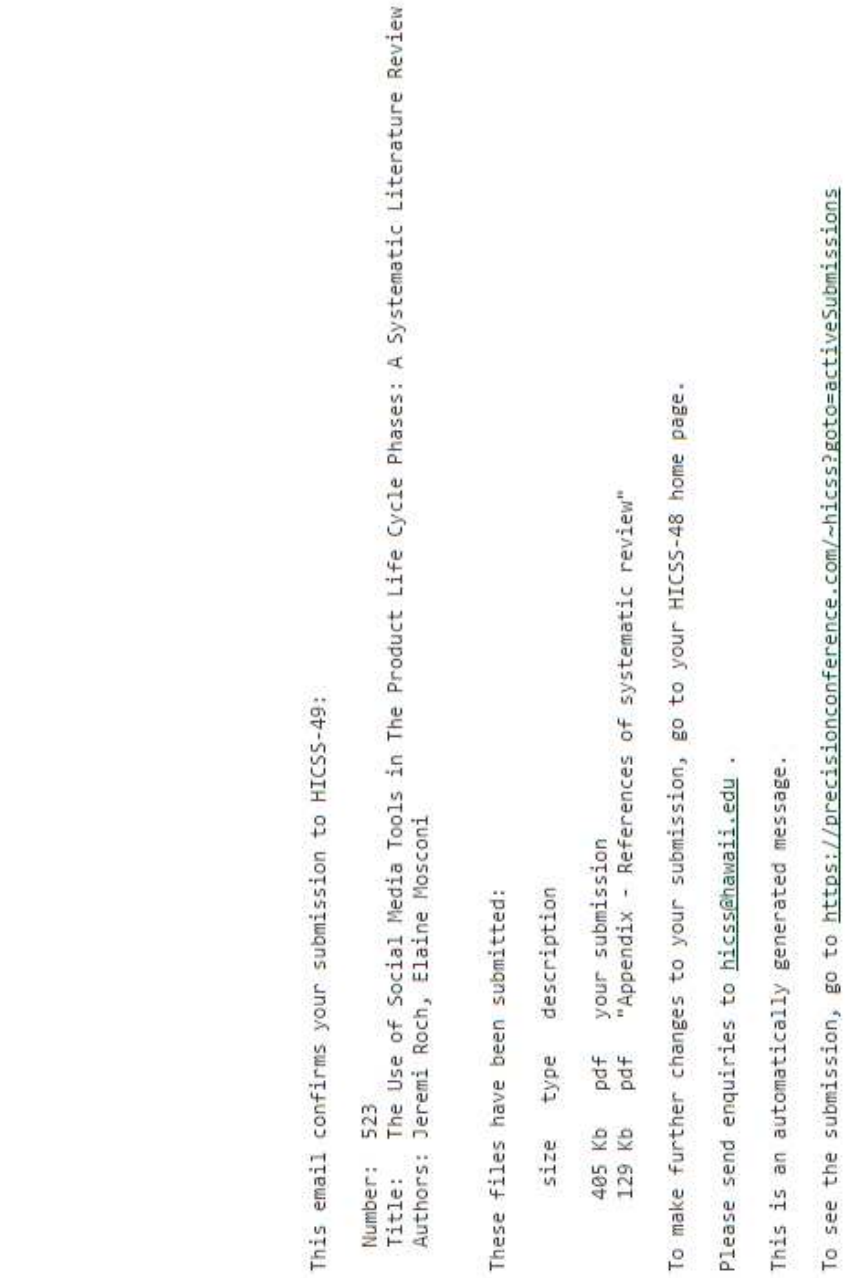
(Il s'avère que, dans bien des cas, ce n'est pas le chercheur principal qui obtient le consentement du participant, mais plutôt l'assistant de recherche.)

Je,_____, certifie avoir expliqué à la participante ou au participant intéressé(e) les termes du présent formulaire, avoir répondu aux questions qu'il ou qu'elle m'a posées à cet égard et lui avoir clairement indiqué qu'il ou qu'elle reste, à tout moment, libre de mettre un terme à sa participation au projet de recherche décrit ci-dessus. Je m'engage à garantir le respect des objectifs de l'étude et à respecter la confidentialité.

Signature : _____

Fait à _____ , le _____201_.

APPENDIX E
PROOF OF SUBMISSION: ARTICLE 1 (CONFERENCE)



This email confirms your submission to HICSS-49:

Number: 523
Title: The Use of Social Media Tools in The Product Life Cycle Phases: A Systematic Literature Review
Authors: Jeremi Roch, Elaine Mosconi

These files have been submitted:

size	type	description
405 Kb	pdf	your submission
129 Kb	pdf	"Appendix - References of systematic review"

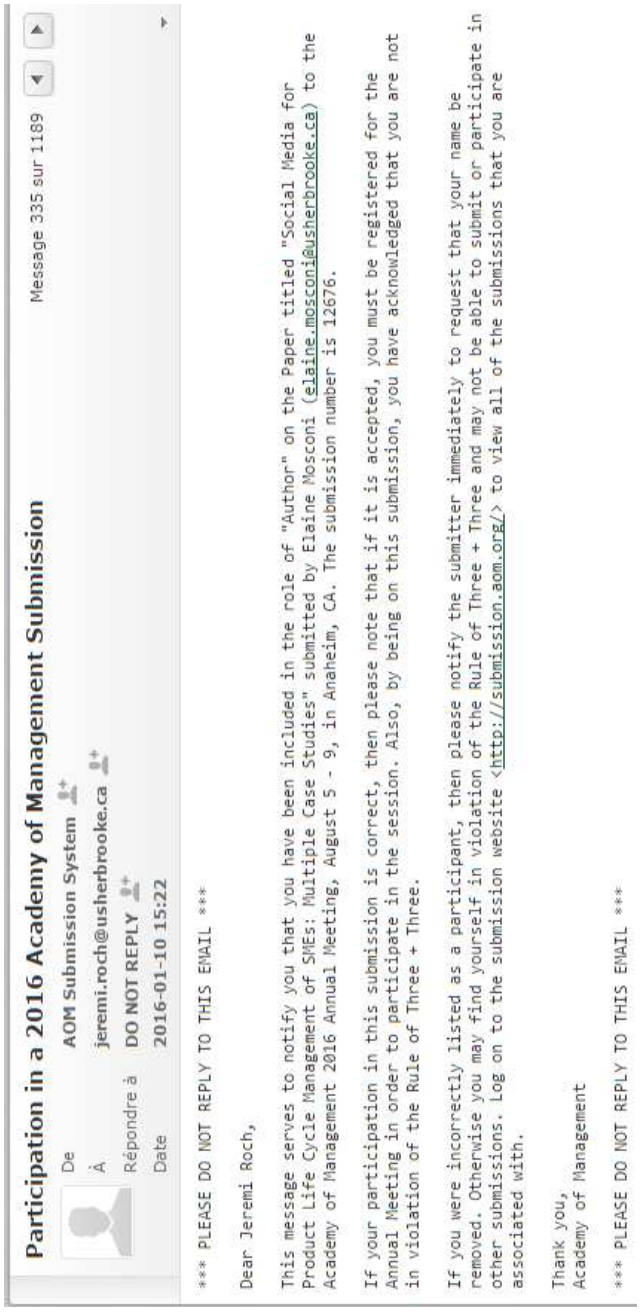
To make further changes to your submission, go to your HICSS-48 home page.

Please send enquiries to hicss@hawaii.edu .

This is an automatically generated message.

To see the submission, go to https://precisionconference.com/~hicss?goto=activeSubmissions

APPENDIX F
PROOF OF SUBMISSION: ARTICLE 2 (CONFERENCE)



Participation in a 2016 Academy of Management Submission

Message 335 sur 1189

De AOM Submission System

À jeremi.roch@usherbrooke.ca

Répondre à DO NOT REPLY

Date 2016-01-10 15:22

*** PLEASE DO NOT REPLY TO THIS EMAIL ***

Dear Jeremi Roch,

This message serves to notify you that you have been included in the role of "Author" on the Paper titled "Social Media for Product Life Cycle Management of SMEs: Multiple Case Studies" submitted by Elaine Mosconi (elaine.mosconi@usherbrooke.ca) to the Academy of Management 2016 Annual Meeting, August 5 - 9, in Anaheim, CA. The submission number is 12676.

If your participation in this submission is correct, then please note that if it is accepted, you must be registered for the Annual Meeting in order to participate in the session. Also, by being on this submission, you have acknowledged that you are not in violation of the Rule of Three + Three.

If you were incorrectly listed as a participant, then please notify the submitter immediately to request that your name be removed. Otherwise you may find yourself in violation of the Rule of Three + Three and may not be able to submit or participate in other submissions. Log on to the submission website <http://submission.aom.org/> to view all of the submissions that you are associated with.

Thank you,
Academy of Management

*** PLEASE DO NOT REPLY TO THIS EMAIL ***

APPENDIX G
PROOF OF SUBMISSION: ARTICLE 2 (JOURNAL)

Dear Dr. Jeremi Roch,

You have been listed as a Co-Author of the following submission:

Journal: Technological Forecasting & Social Change
Corresponding Author: Elaine Mosconi
Co-Authors: Jeremi Roch;
Title: Social Media to Support Product Life Cycle Activities of SMEs: Systematic Literature Review and Case Studies

If you did not co-author this submission, please contact the Corresponding Author of this submission at elaine.mosconi@usherbrooke.ca; do not follow the link below.

An Open Researcher and Contributor ID (ORCID) is a unique digital identifier to which you can link your published articles and other professional activities, providing a single record of all your research.

We would like to invite you to link your ORCID ID to this submission. If the submission is accepted, your ORCID ID will be linked to the final published article and transferred to CrossRef. Your ORCID account will also be updated.

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Like other Publishers, Elsevier supports ORCID - an open, non-profit, community based effort - and has adapted its submission system to enable authors and co-authors to connect their submissions to their unique ORCID IDs.

Thank you,

APPENDIX H
PROOF OF SUBMISSION: ARTICLE 3 (JOURNAL)

Journal of Service Theory and Practice - Manuscript ID JSTP-05-2016-0... Message 1 sur 1189

De msqeditor.emerald@gmail.com

Expéditeur onbehalfof+msqeditor.emerald+gmail.com@manuscriptcentral.com

À jeremi.roch@usherbrooke.ca, elaine.mosconi@usherbrooke.ca

Date Aujourd'hui 13:29

23-May-2016

Dear Mr. Roch:

Your manuscript entitled "Social Media to Support Customer Engagement throughout the Product Life Cycle of SMEs" has been successfully submitted online and is presently being given full consideration for publication in the Journal of Service Theory and Practice (previously Managing Service Quality).

Your manuscript ID is JSTP-05-2016-0103.

Please mention the above manuscript ID in all future correspondence or when calling the office for questions. If there are any changes in your street address or e-mail address, please log in to Manuscript Central at https://mc.manuscriptcentral.com/jostp and edit your user information as appropriate.

You can also view the status of your manuscript at any time by checking your Author Centre after logging in to https://mc.manuscriptcentral.com/jostp.

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Thank you for submitting your manuscript to the Journal of Service Theory and Practice.

Sincerely,
Journal of Service Theory and Practice Editorial Office